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IN THE MUNICIPAL INDEX AND ATLAS (the annual reference volume of data and condensed catalogs published by the American City Magazine Corporation) readers will find statistical material, and articles on a wide variety of municipal and public works subjects, not published in the monthly issues of the magazine.

See pp. 16, 18, 20, 103, 105, 107 for catalogs and publications on municipal and civic subjects

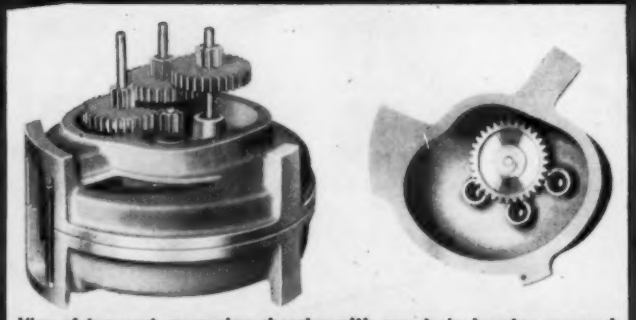
For Index to Advertisements see page 124

SIMPLE COMPACT

THE *Empire*

STREEEMLINE METER

ONLY THREE INTERIOR CASTINGS AND NO INTERIOR SCREWS



View of two-part measuring chamber with gear train housing removed. Snap joint construction of these three interior castings eliminates screws.

Plan Now to Attend the American Water Works Association Conference on Wartime Water Works Problems
The Stevens Hotel — Chicago, Ill. — June 21-25, 1942

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FWA-NRPB—Late News—WPB-OCD

Local Public Works Programming Office To Aid Municipalities

ESTABLISHMENT of a Local Public Works Programming Office on a long term basis and under the joint authority of the Federal Works Agency (Baird Snyder, Acting Administrator) and the National Resources Planning Board (Charles W. Eliot, Director) was announced March 31.

Succeeding the former Public Work Reserve, the new Office will have as its objectives:

To collect information concerning advance construction plans and estimates by states, municipalities, and other public agencies and to consult with state and local agencies in developing orderly programs of non-federal public works.

To aid non-federal government agencies to formulate planned programs of public works based upon information regarding real community need and anticipated financial resources.

To assemble public works programs formulated by non-federal government agencies on the basis of which a determination can be made of the amount and kind of public works to be undertaken in the United States by such agencies during the coming six years.

Local Responsibility

In carrying out the process of formulating a public works program, the operating personnel of the Office will deal, in the first instance, with the responsible head of the local government and will make contact with departmental officials only with the approval of that official. However, the cooperation of all appropriate government officers will be engaged, including planning officers, engineering department officers, finance officers, and others.

The Local Public Works Programming Office will be headed nationally by a Director responsible to both the National Resources Planning Board and the Federal Works Agency through representatives designated by those agencies. Under the Director there will be a suitable headquarters staff and six to nine Regional Directors who will be in turn responsible for the carrying out of the enterprise in an appropriate number of states. In each state, as a rule, there will be a State Director in charge of operations, who will be aided by a staff of assistants who will provide the actual programming assistance to state and local governmental officials.

The effort throughout will be to develop a public works program based upon a real plan for community development.

Priorities for Muncipalities and Public Utilities

Important War Production Board rulings during March affecting priorities for municipalities and public utilities are:

1. *Memorandum 3:1:8*, dated March 9, from Maury Maverick, Chief of the WPB Bureau of Governmental Requirements, addressed to state and local governments. This covers the method of obtaining authority to exceed previous purchases of maintenance and repair items under Order P-100, which restricted such purchases to 110 per cent of the dollar value of similar purchases made during 1940.

"The basis of granting authority for excess purchases," says the memorandum, "will be the increase in population. Where there has been no increase in population, special consideration will be given to cases where a military or naval installation has increased hospitalization, police, or other responsibilities of local government. If there has been an increase in facilities or personnel, the applicant should so state in the application."

2. *Revised Preference Rating Order P-46*. The purpose of this amended order, dated March 26, is to assist municipal and other public utilities in obtaining the minimum amount of materials necessary for maintenance, repair, and operation.

Administrative Letter No. 1, from J. A. Krug, Chief of WPB's Power Branch, discussing P-46 as amended, says:

Public utilities are large users of material most vitally needed for armament. Every effort should, therefore, be made to effect the greatest economy in use of materials, and to undertake only those maintenance and repair jobs which are absolutely essential in maintaining minimum service standards.

The blanket rating of A-10 for maintenance, repair, and operating supplies has been changed to assign:

(a) A-2 to deliveries of material for maintenance, repair and, operating supplies for production and pumping plant facilities; and

(b) A-5 to deliveries of material for maintenance, repair, and operating supplies for all other facilities.

The Order also assigns an A-5 rating to deliveries of material for the construction of facilities necessary to serve new projects (other than housing projects) bearing a rating of A-5 or better, and an A-5 rating to deliveries of material needed for protection against sabotage, where such protection has been ordered by a Federal or State agency.

The Administrative Letter outlines further details of P-46 as amended. Among other things it points out that "Except where authorized by the Order, no additions to or expansions of property or equipment will be authorized unless required for military needs, war production, or public health or safety."

Further information and a copy of Preference Rating Order P-46 as amended to March 26, 1942, are obtainable from the War Production Board or from the U. S. Conference of Mayors, 730 Jackson Place, Washington, D. C.

War Needs versus Civilian Defense

The enactment of laws by states or municipalities requiring citizens to have certain minimum civilian defense equipment may be against the best interests of the war effort, it was decided at a joint meeting of officials of the Office of Civilian Defense and the War Production Board on March 27.

The reason for this decision is that civilian bomb-fighting equipment often contains materials much more essential to the manufacture of munitions, guns, and planes.

Attention was directed to a statement of the Office of Civilian Defense on January 7, 1942, in which OCD Regional Directors were told to exert every effort to have states and cities assemble their necessary bomb-fighting equipment from already existing materials in the community in order to avoid further use of vital raw materials.

The March 27 meeting took the position that galvanized pails for water and sand should not be required for civilian defense and that wooden buckets for the water and wooden boxes for the sand would serve as well. As to stirrup pumps, it was noted that War Production Board technicians are working on a new inexpensive pump which will use materials with very low priority rating. This pump is now awaiting tests.

Ready to go anywhere ... QUICKLY

It's reassuring these days to see those sturdy Bell System trucks along the highway.

They are mechanized motor units. Each has a highly skilled crew; each has its own tools, power and materials. They are ready and efficient and can be mobilized anywhere, any time. And there are more than 27,000 of them.

This is just one way the Bell System is prepared to keep lines open and ready for war-time service — no matter when or where the test may come.

BELL TELEPHONE SYSTEM ... *Service to the Nation in Peace and War*

Our Municipal Notebook

How Much Fire Apparatus Can You Afford?

TODAY, WITH THE POSSIBILITY OF INCREASED ACCIDENTS under blackout conditions and greater delay in getting repair parts, the need of reserve apparatus is greater than ever. In the Pearl Harbor attack, an air field fire station was destroyed and two fire engines put out of service.

Cities cannot expect replacement apparatus from the Office of Civilian Defense. That organization is planning to distribute to civilian defense auxiliary fire forces a certain amount of pumping equipment of 500-gallon capacity. Most of it will consist of pumps, or pump and engine, which will have to be mounted or carried on such trucks as may be available locally. The discontinuance of the manufacture of small commercial trucks will seriously limit the number of self-propelled pumpers.

Considering all phases of this question, including the probability that the war will last beyond 1943, it appears vitally necessary that cities, especially those having war industries, provide funds and let contracts for all the additional fire apparatus that they can afford to purchase, up to a point where each company has a reserve.

Pumpers are of first need. However, experience in England has shown the value of aerial ladder trucks for getting water to upper stories through the use of ladder pipes.

Manufacturers of fire apparatus are believed to be in such a position that they can provide needed replacements. All manufacturers have standard designs, and cities should draw their specifications to permit each manufacturer to bid on his standard design.

Purchasers asking for bids need only to specify the capacity of pump—500, 600, 750, 1,000, or 1,250 gallons at 120 pounds net pressure—and whether it is to be with cab or without. They can then require that in all other details it shall comply with the Specifications of the National Board of Fire Underwriters.

For small communities and mercantile and industrial areas where building heights are moderate a 55- or 65-foot aerial should be called for, and for other places the length should be specified as either 75 feet or 100 feet. Other details can be omitted, except as to whether or not the apparatus is to have a cab.

Technique for Reducing Noise

"THE NATIONAL NOISE ABATEMENT COUNCIL believes the need for noise abatement is more important now than ever before," says its president, William Reynolds, president also of Servel, Inc. Instead of a mere national noise abatement week, there will be "a nation-wide campaign for the duration of the war."

As pointed out in the October 1941, issue of THE AMERICAN CITY, noise abatement in cities has ceased to consist solely of putting the quietus on loud speakers, automobile horns, and trolley wheels. It means the correct use of floor coverings, acoustical materials, and silenced machines in home and office.

City officials and civic bodies can joyfully attack roars, howls, shrieks, and crashes; but to set out to dampen "the busy hum of commerce and industry" requires authoritative information. The members of the National Noise Abatement Council have this information. It can be presented to city officials in a form which they can take hold of as an implement. The big question is not "why should a thing be done," but "how and with what?"

Municipal Plant Protection

TINY ROBOT SENTRIES, many times more efficient than men, are now aiding human guards along the miles of high wire fences that enclose some of the country's greatest war-production plants, the duPont Co. reports. The system, invented by a duPont engineer, is being manufactured by Automatic Alarms, Inc., Youngstown, Ohio.

The "acoustic fence," as it is called, has the effect of greatly extending the range of guards on duty in adverse weather and at night. The guards hear noises for blocks or even several miles along the fence line and can tell instantly the location of any disturbance.

In addition to extending the hearing range of guards, the robots provide an every-ready checking-in system. A watchman need only step up to the fence, report in an established code by tapping, "Guard Wilson at Zone 3, Division L, everything O.K." and he will be plainly heard at headquarters. He can also use the "fence-line telephone" in a similar manner to call for help. And he doesn't even have to lift up a receiver—the line is always open.

The manner of receiving warning alarms or the guard's calls can be as simple or elaborate as desired. They can be heard through a loudspeaker or can be made to record themselves silently on a moving tape or drum, showing the hour, minute, and second received. The signals may also be arranged to ring a bell, or may be automatically relayed to police headquarters.

The invention can be applied with equal readiness to establishments enclosed within wire fences—such as municipal electric, sewage, or water plants.

Blackout Eye

A PHOTO-ELECTRIC RELAY which, pointed at the nearest street light, puts out the store lighting when the street-lamp is extinguished, was described in the February issue of THE AMERICAN CITY. This device has now been placed on the market by two manufacturers, the General Electric Co. ("Nightwatchman") and the United Cinephone Corp. ("Blackout Eye"). The relay is, of course, particularly applicable where the street lights are controlled in the power house. It is sensitive to ¼ foot-candle, with the street light 50 to 100 feet distant. A current application is on a large Schenley sign in Park Square, Boston, Mass.

Blackout Eye, when connected to store lights or electric signs, watches and copies nearest street lamp

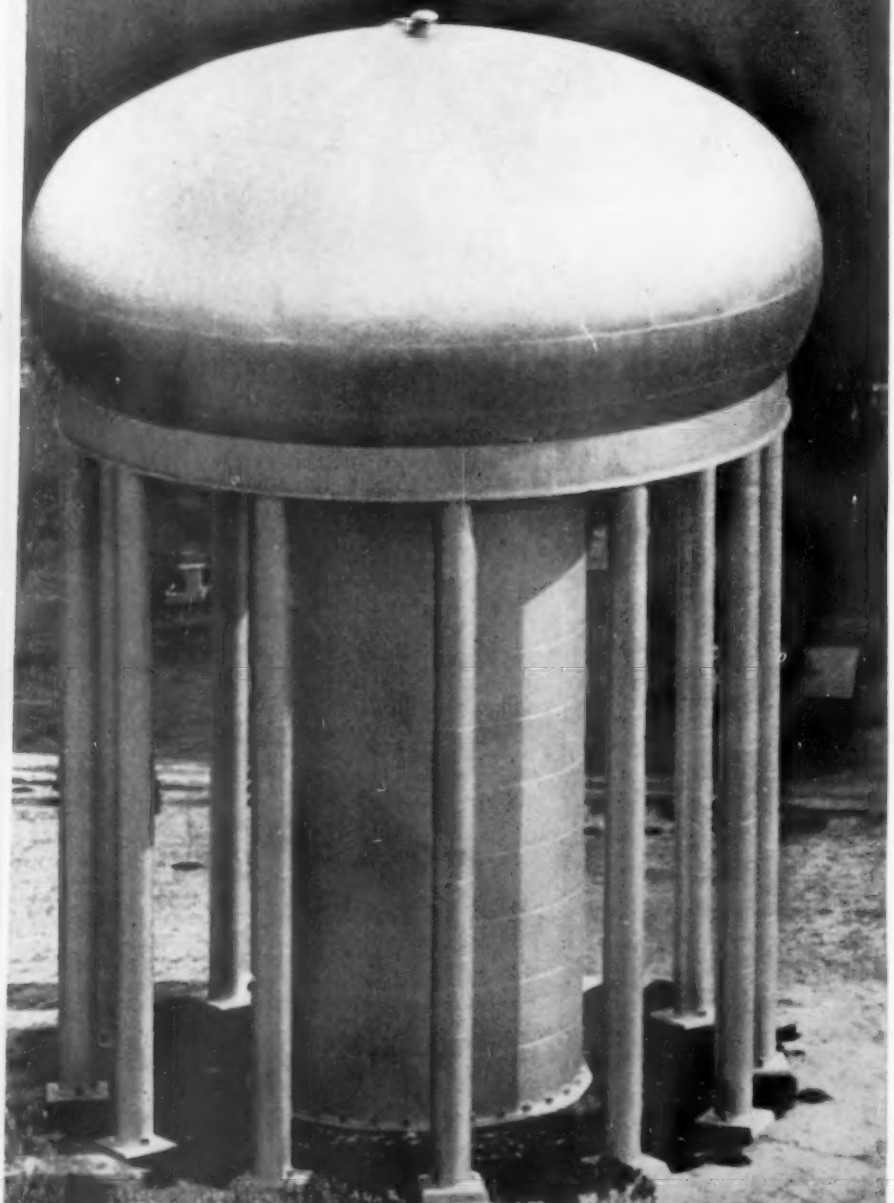
First Spheroidal ELEVATED TANK

IMPROVES SERVICE—CUTS COSTS at Jonesboro, Arkansas

• • •

FUNCTIONAL DESIGN PROVIDES BEAUTY PLUS UTILITY

After a thorough study of designs and types of elevated tanks, the City of Jonesboro decided on the functional design of the Horton spheroidal tank shown here, which incorporates beauty plus utility. In addition to the 1,000,000 gals. capacity in the tank itself, the central riser provides an emergency reserve of 500,000 gals. which may be drawn upon.



"To say we are pleased with the results is to put it mildly."—That's the way Lloyd M. Rebsamen, engineer and manager of water, light and sewerage at Jonesboro, Ark., refers to the improved service and reduced costs made possible through the installation of the 1,000,000-gal. Horton elevated storage tank shown at the left. There are several definite reasons for this enthusiasm.

Prior to November 14, 1940, when the new tank was placed in service, pressures in the distribution system at Jonesboro were balanced by the water level in a 43 year old standpipe. Due to the inadequate capacity afforded by this unit, shutdowns of pumps were only a matter of minutes, resulting in almost continuous loads on the electric plant. In addition, peak pumping periods coincided with peak electric loads.

Additional elevated storage seemed to be the answer to Jonesboro's water supply problems. On checking with the Arkansas Fire Prevention Bureau, it was found that the installation of an elevated tank that would provide about 1,000,000-gals. capacity in the upper storage range, together with a connecting water main from a substation, would give the city a Class 1 insurance rating.

To make a long story short, the Board of Directors for the City of Jonesboro approved the new Horton tank. That this decision was well warranted is attested to by these results:

(1) Power consumption per thousand gallons of water delivered into the system showed a marked drop; (2) Pressure charts show that distribution pressures before the new tank went in service fluctuated between 35 to 60 lbs., with temporary surges rising as high as 80 lbs. After its installation it was possible to hold pressures practically constant, with surges eliminated; (3) Electric plant was able to drop about 300 hp. of well and pump motors from on-peak periods; and (4) On completion of a survey of the effect of the new tank and other water line improvements, the Fire Prevention Bureau awarded the City of Jonesboro with the only Class 1 insurance rating in the state.

These advantages show what can be done with modern elevated storage to improve municipal water service.

CHICAGO BRIDGE & IRON COMPANY

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Water Works Operation

Mandatory Certification for Michigan Operators

FOR THE LAST TEN YEARS chief operators in water-treatment plants in Michigan have been certified as to experience and training by the Michigan State Health Department. The 1941 Legislature has made this health protection mandatory. The Bureau of Engineering, in certifying the personnel in active operating charge of treatment plants, has been acting under authority of a State Council of Health ruling issued at Houghton, Mich., August 13, 1931. The ruling has been adhered to without difficulty, and every such operator in Michigan is now certified but this year the Bureau sought specific legislative approval of the practice.

Engineers from the Bureau pointed out to House and Senate committees that in the last seven years no typhoid fever has been traced to a public water supply in Michigan, and declared that credit for this record can go largely to the trained men in charge of filtering and sterilizing water supplies. The desired amendment of the water and sewer act of 1913 was passed by the Senate 18 to 4, and by the House of Representatives 80 to 3.

Less than a third of the 362 water works in Michigan will be concerned with the certification requirement, since it affects only those plants filtering or chlorinating the water supply, but more than two-thirds of the population depends upon these treated water supplies. Fifty plants both filter and chlorinate their water, and 51 chlorinate without filtering. These plants serve well over 3,000,000 persons; the 261 plants which pump well water and need no treatment serve half a million persons.

In June, 1941, there were 102 certified operators in the state of Michigan.

—From *Michigan Public Health.*

New York Area Faces Acute Water Shortage

WITH RAINS FILLING WATER RESERVOIRS to only 40 per cent capacity, New York City faces the possibility of a serious water shortage which may lead to rationing. The department of Water Supply, Gas and Electricity is urging people in this area to aid in conserving the water supply.

Department officials emphasize the importance of providing adequate water for wartime emergency. Furthermore they point out the need for adequate water supply for fire-fighting and industrial purposes. Civic campaigns have been instituted to encourage water conservation.

The shortage of water, department officials state, is attributed to the abnormally light rain and snowfall.

Vulnerable Water Works Cause Far Eastern Losses

THAT SINGAPORE AND HONG-KONG HAVE FALLEN is no longer news. But their loss brings home all too pointedly the everlasting obligation a water department owes the community it serves. We quote from the Feb. 18 issue of our neighboring Canadian publication "Engineering and Contract Record."

"As this is written, the fall of Singapore seems to be a matter of a few days at best. Already demands are being voiced for an investigation into the work of the military engineers who were supposed to have constructed 'impregnable' fortifications to protect this bastion of Empire. It is not likely that responsibility, if any exists, will be assessed until long after the war, but one fact stands out clearly. Singapore, like Hong Kong, had an extremely vulnerable water supply, and this, more than any other single factor, served to render the city indefensible.

. . . . .

"It is a long way from Hong Kong and Singapore to the quiet waterworks plants of Canadian municipalities. But the factors which contributed to the disasters in the Far East are as potentially serious here. Whether an attack should develop from within or without, only constant vigilance will protect our most precious community asset—an adequate and potable water supply."

Singapore fell on February 15. Hong Kong surrendered last Dec. 25.

Using Flue-Gas for Water Treatment

THE SMOKESTACKS OF THE CITY WATER DEPARTMENT soon may be harnessed for recarbonation of Minneapolis water. City engineering staffs have begun preparing plans for a change-over from the temporary use of filter-alum to a permanent installation using carbon dioxide from this source in controlling the water's pH content.

Original investigations indicated the possibility that this recarbonation would not be necessary. However operation of the municipal plant soon indicated the desirability of the added treatment. Filter alum was then introduced temporarily to relieve this situation.

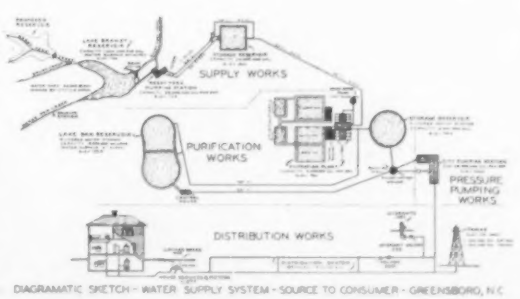
In planning a more economical permanent treating process, department engineers selected the use of flue-gas from the smokestack of the plant's oil-burning furnace as the source of carbon dioxide. This gas, freed of impurities, dried and compressed, will be forced into the chambers and permitted to bubble up through the water.

Water Accounting and Operation, Greensboro

WATER RENT ACCOUNTING IN GREENSBORO, NORTH CAROLINA, embraces 10,531 accounts, an increase of 388 over the previous fiscal year, according to a report of municipal activities for the year ending June 30, 1941. A total of 709 meters are read and billed monthly, and 9,822 quarterly, which means a total of 47,796 readings and billings for the year, representing revenue of $340,005.59.

The Water Division has 30 full-time employees, 14 part-time employees, and its expenditures for the fiscal year were $294,072.06. A 6,000,000-gallon addition to the filter plant, construction of a new 12-inch main in the heart of the city, and the inauguration of a water-line construction program in various parts of the city were high-lights of the last year. These additions increased the value of the system $283,000. Of the total expenditures for the Water Division, $89,299.09 represented operating costs, and the balance fixed charges. The operating statistics for the year were in part as follows:

Water pumped	1,966,548,700 gals.
Daily average	5,387,543 "
Maximum daily pumpage	7,625,000 "
Number metered services	11,077
Meters repaired	935
Meters tested	73



DIAGRAMATIC SKETCH - WATER SUPPLY SYSTEM - SOURCE TO CONSUMER - GREENSBORO, N.C.

POMONAS SAVED $8,000.00 on this installation alone!

Here's how a New Jersey municipal water works project made an out-and-out saving of thousands of dollars in installation costs alone by using space-saving, compact Pomona *Vertical* Pumps for their water pumping operations . . .

Three Pomona Vertical Pumps were installed on this project—two 30 H.P. Pumps for booster operations and one 40 H.P. Pump for back-wash in cleaning the pressure filters. Note how only one base pad was required for *all three* Pomonas, with standard pump bases grouted into the pad. This neat, compact arrangement eliminated all needless surface piping . . . provided ample working space between pumps . . . permitted better grouping of gates and controls for maximum efficiency . . . and cut construction extras to the core. *As a result, a direct saving of eight thousand dollars was realized over original estimated cost of this plant* . . . and Pomona savings will continue to climb every day the pumps are in operation!

Why can Pomonas make such savings?

Pomonas save space because they operate *vertically*. Bearings, impellers and shaft are all down in the well, and only the compact, streamlined motor head is above surface. Complicated, spread-out piping is eliminated, and you can take full advantage of every square foot of floor space in your plant. In addition, dangerous open shafting is eliminated, and the constant attention to priming and oiling operations is no longer a problem. Pomonas not only require no priming but they are lubricated by the water being pumped. There's no chance of neglecting pump lubrication . . . no extra expense for auxiliary priming equipment!

But ask any Pomona Pump user about the many *other* ways Pomonas save on water lifting costs . . . in reduced power bills . . . in trouble-free maintenance . . . in higher overall pumping efficiencies. Then remember that there's a Pomona Vertical Pump for every water pumping job—big or small—*everywhere*. Our engineering staff will be glad to help with your water pumping problem—*write today!*

POMONA PUMPS

POMONA PUMP CO., 120 Broadway, New York City. Plants at 4301 So. Spring Ave., St. Louis, Mo. and 206 Commercial St., Pomona, Calif.

Airport Operation and Construction

Legislation Gave Cities Broader Airport Control

NEW AVIATION LAWS in more than a dozen states in 1940 reflect preparations for national defense by giving municipalities the right to acquire, improve, and operate airports in their vicinities and to control the approaches to them. In reporting the new acts, the American Municipal Association points out that the 1941 congressional appropriation of $94,000,000 to build new and improved landing areas at selected airports will be used in part for municipal airfields. The local governments, however, are required to provide suitable publicly owned land, to construct the necessary buildings, and to maintain and operate the airports.

During 1940 at least three states, Arizona, Maine, and New Jersey, authorized their cities to acquire property for airports; and in Maine, operation of airports was made a governmental function, immune from tort liability. Maine also authorized cities and towns to go outside their limits in acquiring property for airports. Six other states —California, Idaho, Kansas, Oregon, South Dakota, and Washington—provided that cities, or cities and counties which do not find it practical to support airports individually may cooperate in owning and operating them.

Airport zoning, provided for previously in about a dozen state laws to keep approaches to airports free from hazards, was authorized this year in Arkansas, Maine, North Carolina, Oklahoma, Oregon, and Wisconsin. The purpose of the zoning legislation, except in Oregon, was to permit cities to enact, administer and enforce zoning regulations for a specified distance around their airports, usually three to five miles. Oregon authorized its State Board of Aeronautics to establish safety zones around airports according to the procedure recommended by the Civil Aeronautics Authority.

Three Michigan Cities To Operate One Airport

THE THREE MICHIGAN CITIES OF SAGINAW, BAY CITY, AND MIDLAND are cooperating in managing a new airport to be built with federal funds, thus adding one more to the list of more than forty such jointly operated airports in the country. The airport will be built by army engineers under the supervision of the Civil Aeronautics Authority at an initial cost of $527,000. Half the land cost of $100,000 is assumed by Saginaw, which also will pay half the maintenance charges when the airport is finished. Bay City will pay 30 per cent of the maintenance costs and Midland 20 per cent.

This inter-city action dates back to 1940, when the three cities requested state aid on individual airports. The joint project was suggested by the CAA, and each city passed an ordinance under the state enabling act permitting participation. A three-man commission, consisting of the chief officials of Saginaw, Bay City, and Midland, will operate the airport and will be responsible directly to the city councils.

Large Paved Acreage at Cleveland Airport

THE LANDING AREA AT THE AIRPORT at Cleveland, Ohio, is over 1,000 acres, sufficiently large so that if the three internationally famous airports, Croyden in England, LeBourget in France, and Templehof in Germany, were placed together in the Cleveland airport there would be an airport left as large as any one of them. The airport paved area for take-off and landing totals 342,000 square yards of all-weather surface. The mat plus the taxi strips and two short additional runways comprise an area of about 85 acres, which is the equivalent of approximately 35 miles of 20-foot pavement.

After considerable investigation and research, it was decided that the most enduring type of all-weather surface for the mat would consist of a flexible section, capable of taking the shock of large planes, composed of 1½-inch of plant-mixed asphaltic concrete surface placed on a 4-inch base of penetration macadam, using 1.6 gallons per square yard of asphalt, further supported by a 4½-inch sub-base of waterbound macadam. To seal the surface, 0.4-gallon per square yard of asphalt and 12 pounds per square yard of limestone chips were added. This type of construction, plus the drainage features, assures an adequate load-supporting surface to take care of any plane which might be developed within the next decade. This has been borne out since the completion of the paving in 1935, and if in the future it seems advisable to increase the thickness of the mat, it will be very easy and economical to add one or two inches of plant-mixed asphaltic concrete.

The finished mat presents a uniform non-skid surface, having a rolling contour. Long rolls were included in the plan to assist in rapid draining of the field; they are not sufficiently steep to cause rough landings or take-offs. The white limestone chips applied as a seal seemed desirable at the time as an aid to pilots locating the ground when landing; in view of reports from the present conflict in Europe, it may be desirable to darken the surface by the application of a thin coat of cut-back asphalt. Were this airport bombed, a crater caused by any one bomb would not tie up an entire runway and could at the same time be easily and quickly repaired.

A blind landing strip was added to the Cleveland airport in 1937. This runway is 100 feet wide and extends 2,500 west from the mat, making a total hard-surface strip of 4,500 feet for blind landing.

—From a paper presented at the Thirteenth National Asphalt Conference, Dallas, Texas, by MAJOR JOHN BERRY, Commissioner of Airports, Cleveland, Ohio.

Widening and lengthening the runways of the Madison, Wisc., Municipal Airport with a Barber-Green tamping-leveling finisher. This machine laid a 2-inch mat 150 feet wide over a limestone base, using a total of 10,000 tons of bituminous mix

A Story——

WE DARE NOT TELL!

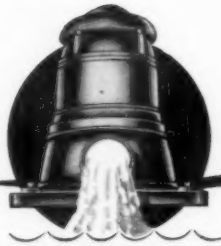
The scene might be in the Western Plains Country, or it might be somewhere near sea water, but regardless of location, it is a story that can't be told now. Never have such water systems been constructed. The idea is entirely new and is of major importance to the armed forces.

One fact worthy of note is that Layne was called on to drill the wells, furnish and install the pumps and to fulfill other important missions. In record time, everything has gone through on schedule. The task, though entirely new and very complicated, was handled by Layne engineers as if their usual methods had been employed.

It is characteristic of Layne to meet and conquer unusual well water supply problems. Layne engineers are trained for unforeseen eventualities. To fulfill the requirements of the Government was difficult, but promptly and satisfactorily accomplished.

Your water supply system may not involve any such highly secretive plans, but whether in the conventional or of an entirely new nature, Layne can serve you. For literature address

LAYNE & BOWLER, INC.
Memphis, Tenn.



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AND PITTSBURGH . . . . . PA.
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MINNEAPOLIS . . . . . MINN.
INTERNATIONAL WATER SUPPLY, LTD.,
LONDON . . . . . ONTARIO, CANADA

The above companies are affiliates of Layne & Bowler, Inc., Memphis, Tenn.

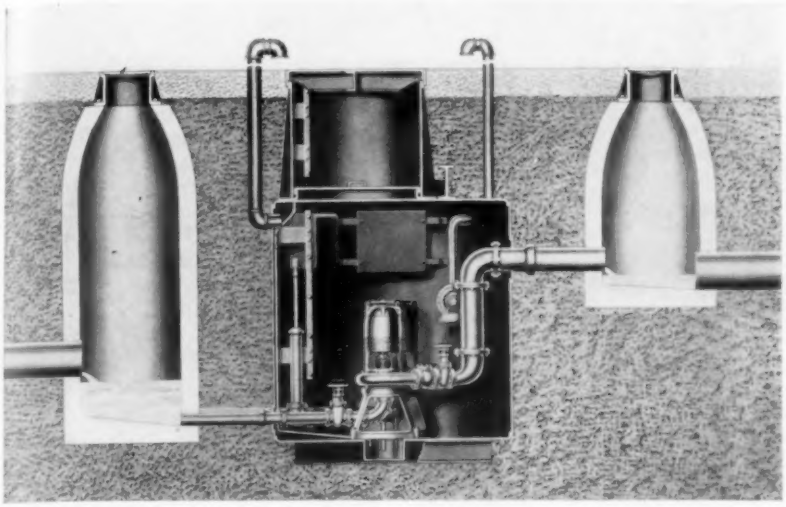
LAYNE PUMPS & WELL WATER SYSTEMS

● IF YOU NEED MORE WATER — Layne will provide competent engineers who will cooperate in checking water bearing formations, size of wells necessary and the type of pumps that will operate at the lowest cost per million gallons. No obligation.

WORLD'S LARGEST WATER DEVELOPERS

During April we hope you will remember to mention THE AMERICAN CITY.

Sewerage and Refuse Disposal



Sectional drawing of the underground pumping station used at the Ft. Thomas induction center

Sewage Pump Station Placed Underground

IN ORDER TO PROVIDE SEWAGE FACILITIES to extensions in the Fort Thomas induction center for selectees, engineers planned and constructed an underground type of pumping station that would not interfere with surface features, such as roadways or lawns.

Inasmuch as this station is a complete factory product, preliminary engineering and construction time was reduced to a minimum. The station selected in this installation was a Fairbanks-Morse Duplex unit, pressure controlled, using 4-inch pumps and 3 hp, 1200 rpm motors. Each unit is rated as having capacity to pump 325 gallons per minute against a 22-foot dynamic head.

Plant "Operator" vs Plant "Superintendent"

ANALYSIS OF THE CORRECT DESIGNATION for the man who is in charge of a sewage treatment plant was subjected to discussion at the meeting of the New Jersey Sewage Works Association, held March 5th and 6th at Trenton.

During the discussion it was pointed out that many operators have difficulty in obtaining the proper financial support of their city councils for the reason that the title of "operator" does not convey more than a mechanic's knowledge of the plant.

"We do not want this just to give ourselves a high-sounding title," stated John R. Downes, supervising engineer of the Plainfield plant and secretary of the New Jersey Association. "It is our opinion that the title of 'superintendent' will materially assist a man in charge of a sewage treatment plant to get the support his plant deserves.

Opinion to the contrary was expressed by Paul Molitor, Jr., Morristown, treasurer of the association. "I feel that if you do your job well," he stated, "and you concentrate on performance and service, you will get the recognition necessary."

The motion to submit this to the executive board for action was introduced by Sol Seid of the Raritan Valley section. It was carried by a close vote.

Sanitation Commission Reports Progress

FOUR TIMES AS MUCH POLLUTION NOW is being removed from the Interstate Sanitation District, which embraces the metropolitan area of New York, New Jersey, and Connecticut, than was being removed prior to 1936, when the Commission was organized, according to an estimate contained in a report recently issued by the Interstate Sanitation Commission.

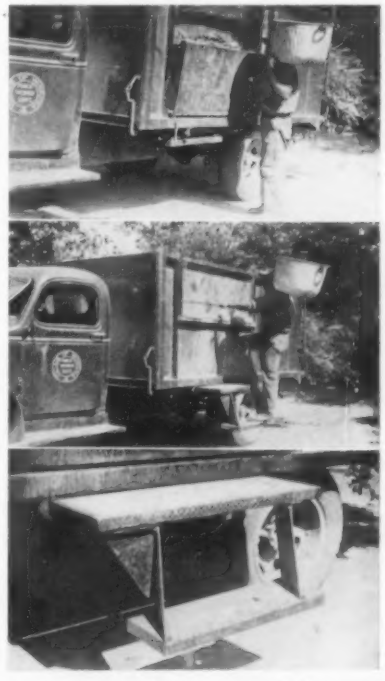
At the present time, the report states, there are 77 sewage-treatment plants completed and operating, with seven additional plants now under construction. Realizing that the abating of pollution from New York harbor and adjacent waters is a huge task, the Commission has attempted to encourage municipalities to undertake the work.

Folding Loading Steps for Rubbish Trucks

A LOADING STEP, constructed to fold up and latch against the platform, has been incorporated in the construction of two rubbish-collection units recently purchased by the Village of Winnetka, Ill. This feature on the new 12-yard units, according to R. L. Anderson, Superintendent of Public Works, eliminates the objectionable loading height problems usually connected with bodies of that size.

The bodies are mounted with the floor only 8 inches above the chassis. Since the collectors normally carry the rubbish on their shoulders from the residences served, nothing is gained in a truck arrangement permitting loading below shoulder height. Drop-side sections, 25 inches deep, permit loading of the first half at the convenient height of 63 inches. The loading steps and platforms allow loading the second half from a height of only 53 inches.

A red bulls-eye flashes in the cab informing the operator whenever one of the platforms is out. This helps to eliminate possible accidents to the platform.



Steps to easier loading of rubbish trucks at Winnetka, Ill. Left top: the steps folded up out of the way; middle and bottom, the steps let down ready for use

"Looks as if that new Mack's making the boys a mite lazy!"

Mack type 19-1000 gallon . . . . . combination pumper—one of the 6 Macks in the Fire Department of the City of Stockton, Cal. Chief Ralph Thompson has added nothing but Macks since the city's first Mack purchase in 1933! Several of these Macks have pumped as long as 57 hours continuously without shutdown, at draft—in the Taylor Milling Fire of 1935.

Have a heart, Hezekiah! If the boys have been lucky enough to get their hands on the best pumper going—can you blame 'em for letting her show her stuff?

You see, Hezekiah, that Mack isn't just a re-vamped truck chassis. It's been built from the ground up to perform a specific job with the highest possible performance.

Every single vital part in that pumper has been made under rigid Mack supervision—from the molten metal stage up—in Mack factories. That's one of the important reasons why Mack pumping apparatus has superior power, superior stamina, superior dependability.

And another thing—Mack's got 70 direct factory branches—for quick, economical service, when needed.

No wonder 200 towns and committees have added Mack apparatus during the past year! No wonder the Army and Navy are using Mack apparatus for protection in vital areas!

Toss away your bucket, Hezekiah. Mack's on the job . . . everything's under control!

Write for complete information on a Mack fire-fighter for your needs today.

The Mack Fire Apparatus Line includes triple and quadruple pumpers from 200 to 1500 gallon capacity, hose wagons, city service ladder trucks, squad cars—comprising 14 distinct and specialized models.

Mack

MACK MANUFACTURING CORPORATION, FIRE ENGINE DIVISION, LONG ISLAND CITY, N. Y.

Public Safety

Paints in Wartime

MUNICIPAL OFFICIALS might like to know that we are giving some particular attention at this time to war paints—luminous, blackout, traffic, rust-resistant, brick and cement coating, and others which we should be glad to explain.

We find an increasing demand for rush painting jobs involving one coat of paint. To meet this demand, we have developed a self-sealing product incorporating the qualities of both primer and finish. It can be tinted any color and brushes uniformly over all kinds of surfaces.

Our metal protection paint has produced results for water, sewage, and municipal electric plants, while for swimming pools and exterior masonry we recommend Bay State Brick and Cement Coating. Paints for interior uses require uniform and lasting color plus washability.

M. W. LIGHTCAP,
Painter & Maintenance Division,
Devoe & Raynolds Co., New York.

Good Lighting Design

ALTHOUGH THE FORMER STREET-LIGHTING SYSTEM of Detroit, Mich., was ineffective when judged by visibility standards, the spacings and lamp sizes were excellent and quite in accordance with modern practice. For this reason, that city, by replacing obsolete pendant luminaires with new luminaires and with the same size lamps and the same spacings, was able to make the change without any increase in the annual operating and maintenance costs on most of the traffic thoroughfares where the 300 miles of modern street lighting have been installed.

L. A. S. WOOD,
Chief Lighting Engineer, Westinghouse Electric & Mfg. Co., Cleveland, Ohio.

Furnishing Pleasure with Life Saving

THESE TIMELY ILLUSTRATIONS SHOW THE BURKE-ELWOOD EVACUATOR purchased by Fire Chief J. S. Stephenson of Miami Beach, Fla., in November, 1941. Fire Chief Henry R. Chase of Miami is naturally also interested in this important new device which can be used for removing victims from the tenth story of a building. Both the Florida cities have a heavy tourist responsibility. Their off-season populations are respectively 25,000 and 175,000 and in winter 175,000 and 350,000.

The B-E evacuator, as the name implies, is a portable fire escape intended primarily for use by fire and police departments to evacuate people quickly and safely from burning buildings with a minimum of manpower. It consists of a strong, tubular-steel framework with adjustable hooks to attach to window sills or roof parapets, which in turn supports a chute of heavy duck treated to make it fireproof, waterproof, and mildew-proof. All seams in the duck are sewed with brass wire.

In practice, one man ascends the ladder and enters a window to assist people into the chute, and one other man carries the framework up the ladder, leaving the chute pack on the ground. The man inside the window attaches the adjustable hooks, freeing the man on the ladder for other duties.

Any two citizens or police officers can hold the bottom end of the chute, thus releasing firemen for other tasks. The men holding the bottom of the chute can, by slightly changing the angle in which the chute is held, control the speed of descent. The device can be used in narrow alleys or any place where a ladder can be raised, because if necessary the chute can be held laterally along the side of the building. Chutes can be stored on each floor as part of the permanent safety equipment of the building.

Fire Chief J. S. Stephenson of Miami Beach, Fla., looking at the compactly folded Evacuator—also shown in use

Keep Up-to-Date on New Equipment

Please check over the following list of interesting catalogs obtainable free of charge and either write direct to the manufacturers for their literature, or, if you prefer, put a circle around the identifying numbers below to indicate the catalogs you want, mail this coupon to The American City Magazine, 470 Fourth Ave., New York, and we will see that the catalogs are sent to you without expense or obligation on your part. 4-42

179 180 181 182 183 184 185 186 187 188
189 190 191 192 193 194 195 196
197 198 199 200 201 202 203 204 205 206
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Name ..... Position .....

Address .....

Preparing Community Victory Bulletins

179. City and county defense councils are finding increasing use for the Mimeograph duplicator in organizing their community resources for the protection of civilians and property. This equipment is turning out everything from forms and bulletins to illustrated instruction manuals for vocational training programs. You may obtain full information on the Mimeograph duplicator and free samples of Mimeograph illustration pages by writing the A. B. Dick Co., 720 W. Jackson Blvd., Chicago.

Testing Water Meters

180. The Ford Meter Testing Equipment has been designed to provide for the clamping of the meter in the testing position, regulating the test flow, and the computing of the accuracy of the meter. Calibrated tanks come in varying sizes. For full information and advice regarding your testing problem, write to the Ford Meter Box Co., Wabash, Ind.

Marking Traffic Lanes and Crosswalks

181. The Meili-Blumberg Corp. have developed marking equipment that is fast and efficient for marking traffic lanes and can be used as well for striping parking lanes, crosswalks, safety zones, playgrounds, airports and in many other similar places. For literature regarding this, write to the Meili-Blumberg Corp., New Holstein, Wisc.

Uniforms That Can Take It for the City Forces

182. Material going into uniforms for the city forces should be required to meet exacting U. S. government tests to insure better wear. Reeves Army Twill meets these tests and keeps its shape under trying conditions. If you need uniforms for your city forces, write to Reeves Brothers, Inc., 54 Worth St., New York City, for their colorful leaflet describing this material.

Salvaging and Re-Using Cast Iron Pipe

183. Realizing the uncertainty of accurately forecasting future municipal population requirements or building trends many engineers are using pipe that can be salvaged and reused if necessary. For full information on the economical use of this pipe, write to The Cast Iron Pipe Research Assn., 1015 Peoples Gas Building, Chicago, Ill.

Portable Tar Melters

184. Tar melters should be sturdy and able to stand up under the rough handling that equipment is subjected to on construction work. D. R. Sperry and Co. have available several sizes of melters made of heavy steel plate with hanged covers and cast iron doors. For full information write to them at Batavia, Ill., Dept. 1.

Emergency Water Works Sterilization

185. If your water works is in an area that indicates the need of emergency sterilization in case of wartime activities, Proportioneers, Inc., invite you to check over the advantages of their portable equipment. Write for a copy of "Emergency Sterilization Equipment" describing application and advantages of Dual Drive Chlor-O-Feeders, addressing your request to Proportioneers, Inc., 99 Codding St., Providence, R. I.

Efficient Asphalt Road Construction

186. Asphalt distributors, hand sprayers and rollers to meet varying kinds of conditions and do the job quickly and efficiently are offered by Littleford Bros., Inc., 500 E. Pearl St., Cincinnati, Ohio. For quality road construction that needs to be done quickly, Littleford Bros. invite you to write them for advice.

New Machines for Tax Accounting

187. Burroughs Tax Accounting Machines are finding use throughout the country to meet requirements of tax procedure. To show how these machines may fit your requirements they have prepared a new bulletin on modern accounting methods. When writing, ask for "Tax Accounting" addressing your request to the Burroughs Adding Machine Co., 6152 Second Blvd., Detroit, Mich.

Soil Stabilization Equipment

188. The increasing use of stabilized roads such as soil-cement, asphalt, calcium chloride, and other stabilizing agents, has brought with it demands for proper tools. The Allis-Chalmers Tractor Division has prepared a new bulletin devoted to equipment that they have developed for this purpose. For your copy of this bulletin, write to the Allis-Chalmers Tractor Division, Milwaukee, Wisc., and ask for their bulletin, "Soil Stabilization."

Controlled Aeration for Activated Sludge

189. Fitting the oxygen supply to the demands of the activated sludges, the Chicago Pump Co. has developed their Swing Diffuser with Tapered Aeration. It combines features of portability, simplicity, and economy in air supply. Write to the Chicago Pump Co., Sewage Equipment Division, 2330 Walfram St., Chicago, and ask for free literature on the Swing Diffuser.

Cleaning Water Mains

190. With pipe replacement materials becoming scarce, engineers and water works superintendents find themselves faced with added difficulties in maintaining normal operations. The National Water Main Cleaning Co., 30 Church St., New York City, specialists in internal ailment of water mains, will give you a preliminary diagnosis of the condition of your mains without charge or obligation and will furnish literature on request.

Quick Repairs in Defense Emergencies

191. To quickly make repairs in pipelines damaged by war action, the American Cast Iron Pipe Co., Birmingham, Ala., have developed a Doublex Simplex Split Sleeve. You can obtain full information on this by writing them at Birmingham.

Sure Gripping Sewer Rods

192. To clean sewers with equipment that is easy to operate and positive in action, the Expanding Sewer Machine Co. have developed sewer rods that are joined with a dual lock forming a rigid chain able to float. This equipment comes in two sizes and may be uncoupled if desired. For complete information on this and other sewer cleaning apparatus, write to Expanding Sewer Machine Co., Nappanee, Ind.

Asphalt Runways for Airports

193. To build airport runways that are resilient and able to withstand the shock of landing a heavy bomber or a commercial airliner, The Texas Co. has developed construction procedure and specifications that will meet these conditions and give durability as well. Free literature for durable airport runways may be obtained by writing this company at 135 E. 42nd St., New York City.

Guard Your Water Supply System

194. Maintaining water works in tip-top condition requires careful maintenance and reconditioning. Layne and Bowler, Inc., Memphis, Tenn., are able to cooperate and advise regarding these maintenance problems as well as related work involving additional water supplies, and will furnish literature upon request.

(*Continued on page* 18)

Conservation Sounds a Patriotic Call

CONSERVATION of meters is a patriotic duty. The Water Works Superintendent has a double conservation responsibility—first to conserve water and second, to conserve equipment. He must take steps to put water meters in "good as new" condition so that they can continue to curb waste and protect revenue.

Those farsighted communities which invested in Badger Water Meters will be faced with less expense in their adjustment and repair programs. . . . Badger's low maintenance cost — as little as 1c per meter per year in many communities — is vital today — not only to present users but to those who are planning to put in meters to conserve water and save revenue.

Plan to attend the American Water Works Association Convention — Chicago June 21-25

BADGER METER MANUFACTURING CO., MILWAUKEE, WIS.

Branch Offices: New York City • Tampa, Fla. • Seattle, Wash. • Savannah, Ga. • Kansas City, Mo. Marshalltown, Iowa • Waco, Texas • Los Angeles, Cal. • Chicago Ill. • Philadelphia, Pa.

CONSERVE the HEALTH of your WATER MAINS!

Dr. National Efficiency, specialist in the internal ailments of water mains, says:

"If some of your cast iron mains are in poor condition and unable to deliver more than a fraction of their original capacity—

CALL THE DOCTOR!

Let us make a preliminary diagnosis of their condition. (No charge or obligation for the diagnosis.)

The symptoms seem to point to a need for

The "Doctor" has branch offices at:

115 Peterboro St., Boston

7103 Dale Ave. St. Louis

406 Florida Theatre Bldg. Jacksonville

501 Howard St. San Francisco

910 William-Oliver Bldg. Atlanta

3812 Castellar St., Omaha

205 W. Wacker Dr., Chicago

2038 Union Ave. Montreal

NOW is the time to get the distribution system into good shape to meet any emergency that might arise.

The NATIONAL METHOD of WATER MAIN CLEANING

The National Water Main Cleaning Co.
30 Church Street New York

WHICH OF THESE CATALOGS WOULD YOU LIKE?

(*Continued from page 16*)

Hand Fire Pumps for Defense Use

195. An increasing number of cities are installing Indian fire pumps to take care of bombs if, when, and as they fall. Their manufacturer has given close field study to the use of hand pumps for the present war emergency and has prepared interesting data for city officials. Address D. B. Smith & Co., 419 Main St., Utica, N. Y.

Control of Liquid Chemicals

196. The "Pulsafeeder" manufactured by Wilson Chemical Feeders, Inc., Buffalo, N. Y., has been adapted for feeding practically all chemicals in solution form. Carefully designed valve construction allows the feeding of both high and low viscosity and also slurries of high solids content. For full information regarding this feeder write them for their bulletin "Wilson Pulsafeeder."

Top Efficiency in Municipal Accounting

197. To get the most out of the accounting department of city governments, an increasing number of municipal officials are relying on the accuracy of the modern accounting machine. Remington Rand will help you put your accounting procedure on a modern basis and avoid delays and inaccuracies in the work. For advice regarding your municipal accounting problems, write to the Tabulating Machines Division of Remington Rand, Inc., at Buffalo, N. Y.

Concrete Paving Joints

198. Authoritative requirements for paving joint design in regard to load transfer characteristics is contained in a new bulletin published by the W. S. Godwin Co., Inc., Baltimore, Md. Discussing joint assemblies generally, it further presents information on the Godwin Joint Assembly and how it meets the general joint design requirements. This bulletin may be obtained by request, asking for "Concrete Paving Joints."

New Sanitation Equipment

199. The Chain Belt Co. have issued a new folder describing the Rex Sanitation Equipment. It describes, illustrates and gives technical information concerning Rex Slo-Mixers which offer the operators of sewage and water treatment plants the advantages of the Langlier Process of Multi-Stage flocculation. This folder may be obtained by writing to the Chain Belt Co., Sanitation Equipment Division, Milwaukee, Wisc.

Wartime Paving Standards

200. Modern economical paving designs are conserving a large part of the critical materials previously used. These designs are the results of comprehensive studies in concrete pavements. Full information on how to build your streets out of concrete, retaining the customary quality and economizing on critical material, may be obtained by writing the Portland Cement Assn., 33 W. Grand Ave., Chicago, Ill.

Check Valves for Remote Tank Storage Service

201. When conditions arise requiring remote tank storage service, the choice of a valve to be used adjacent to the motor centrifugal pump requires study. The Golden-Anderson Valve Specialty Co. have developed an Electric Double Cushioned Check Valve that they believe will meet requirements under these conditions. Additional information and specifications may be obtained by writing them at the Fulton Building, Pittsburgh, Pa.

Cast Iron Pipe

202. The Warren Foundry and Pipe Corp. furnishes cast iron pipe in sizes ranging from 2 inches to 84 inches. The threaded pipe finds use in filtration systems, golf links, sprinkler systems and any other related places. Their catalog may be obtained by writing to 11 Broadway, New York City.

Fire Hose That Is Lighter and Lasts Longer

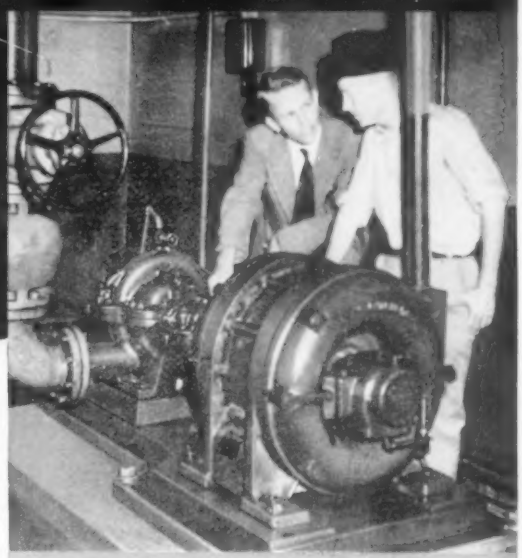
203. The Bi-Lateral Fire Hose Co. offers a fire hose so designed that it lies in a flattened position when not in use. This feature, they feel, will allow it to give more service than hose constructed under the standard method. They are also able to effect marked savings in weight thereby reducing required truck cost. For information and literature write to the Bi-Lateral Fire Hose Co., 20 N. Wacker Drive, Chicago.

Steam Sirens for Warning Signals

204. The Pilot marine horn made by The Pilot Marine Corp., New York City, is operated by steam at 125 pounds pressure carrying its warning signal for about 15 miles at sea. Increasing the steam pressure to 700 or 800 pounds increases the range to forty or fifty miles at sea, without affecting its tone. Complete information regarding steam sirens for installations on plants equipped with steam pressure may be secured from this company.

(*Continued on page 20*)

HOW $1100 MONEY-LEAK WAS STOPPED!



"ALLIS-CHALMERS PUMPS MEANT A lot to us." Says C. S. Layson, Superintendent, Harlan Water Works, Harlan, Ky., as he looks over new Allis-Chalmers pump and motor.

Since Replacing Their Old Equipment With New Allis-Chalmers Pumps, Harlan Water Works Are Saving $1100 Every Year . . .

INCREASED EFFICIENCY . . . increased capacity . . . reduced power consumption . . . and a saving of $1100 a year — that's what Harlan Water Works, Harlan, Kentucky gets from their new Allis-Chalmers pumps.

Your system may offer the same opportunity for economy and increased efficiency! Where two old 350 gpm pumps formerly pumped water at a head of 40 feet to the filtration plant — today one 700 gpm Allis-Chalmers pump does the job. Two old 350 gpm pumps that delivered water at a head of 260 feet to the tank on the hill have been replaced by one 700 gpm Allis-Chalmers pump.

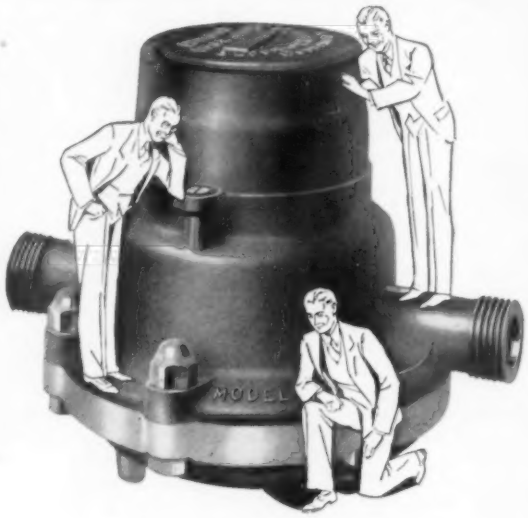
By this modern, improved installation—horsepower was reduced . . . power consumption was cut 17% . . . and maintenance for parts, to date, has been completely eliminated. For Harlan that means $1100 saved every year—enough in three years to cover total cost of both purchase and installation of the pumps.

This indicates what Allis-Chalmers Municipal Pumps can do and are doing for other cities and towns. Today, efficiency and economy are more important than ever before to the people of our nation. Waste must be stopped! See how Allis-Chalmers pumps can solve your pumping problems.

For full information, call the trained engineer in our district office near you. Or write Allis-Chalmers, Milwaukee, Wis. A 1501

Allis-Chalmers Pumps Can Cut Your Pumping Costs

ALLIS-CHALMERS
MILWAUKEE · WISCONSIN



WHAT RATES "*OK*" WITH YOU AT METER BUYING TIME?

Is it details of engineering, simplicity of construction, laboratory perfection of operation, freedom from upkeep expense—or the sensible balance of them all?

Is it price or performance—or the proper combination of both?

Is it just one mechanical feature—or the correct balance of all desirable meter features in the most satisfactory working combination?

If you would have the balanced facts on meter buying, a word by mail or wire will place them on your desk.

AMERICAN & NIAGARA
Water Meters

BUFFALO METER CO.
First-Quality Meters Exclusively
2902 Main Street
Buffalo, N. Y.

WHICH OF THESE CATALOGS WOULD YOU LIKE?

(*Continued from page 18*)

Making Branch Water-Works Connections

205. To fully equip your water works so that it will meet all wartime needs, water-works operators must be prepared to make repairs and connections speedily to supplementary pipe lines. The Smith Tapping Machine will make water connections under pressure in sizes varying from 2 inches to 42 inches. Full information concerning this tapping equipment may be obtained by writing The A. P. Smith Mfg. Co., East Orange, N. J.

Electric Air Raid Sirens

206. The Federal Electric Co. points out that in bomb-blitzed Britain, the war stricken areas depended on electric sirens more than any other type for alarm protection against the raiders. For literature on how to fit electric sirens into your municipal defense, write to the Federal Electric Co., Inc., 8744 S. State St., Chicago, and ask for Bulletin No. 68.

"Jamless" Valves for Water-Works Plants

207. Valves for water-works plants in conneciton with the filtration system must have accurate control features. The Chapman Valve claims as an outstanding feature its micrometer-adjusted Chapman Limit Switch which controls seating to any pre-determined tightness and eliminates jamming. Their bulletin describing this unit is available by writing The Chapman Valve Mfg. Co., Indian Orchard, Mass.

Holding Costs Down with Asbestos Pipe

208. "Low cost per mile" is claimed by Keasbey and Mattison Co., Ambler, Pa., for their K and M "Century" Pipe. The feature of lightness they assert, reduces transportation and labor costs. Maintenance costs also go down because of the resistance to tubercles and corrosion. For further infomration, write them for their free booklet, "Mains Without Maintenance."

Efficient Engines for Pumping Power

209. Regardless of the nature and scope of the pumping problems existing in your water-works plant, the Fairbanks, Morse and Co. with its wide range of engine sizes is able to give you the benefits of outstanding economy and dependability. For literature regarding their engines, write to Fairbanks, Morse and Co., 600 S. Michigan Ave., Chicago, Ill.

Street Sanitation

210. Heil street flushers and garbage collection units are designed for large loads, quick operation and efficient performance. For advice and literature on how to modernize your city departments that care for garbage collection and street flushing, write to The Heil Co., Milwaukee, Wisc.

Maintaining Concrete Slabs with a Mud Jack

211. If it is necessary to raise sunken spots in concrete slabs, or to superrelevate paving to modernize it for present-day traffic requirements, street superintendents find increasing value in the use of the mud jack. The Koehring Co., Milwaukee, Wisc., have produced a mud-jack that they feel is particularly well adapted to use in city maintenance work. For information regarding this equipment, write to them asking for their new Mud-Jack Bulletin.

Pumps, Fire Hydrants, Gate Valves

212. For information on multi-stage pumps of from 50 to 3,500 gpm and heads up to 1,600 feet, and also single stage double suction pumps of from 75 to 20,000-gpm capacity, as well as for fire hydrants and A. W. W. A. gate valves, write to the Manistee Iron Works Co., Manistee, Mich. for free bulletins.

Electric Floatless Controls

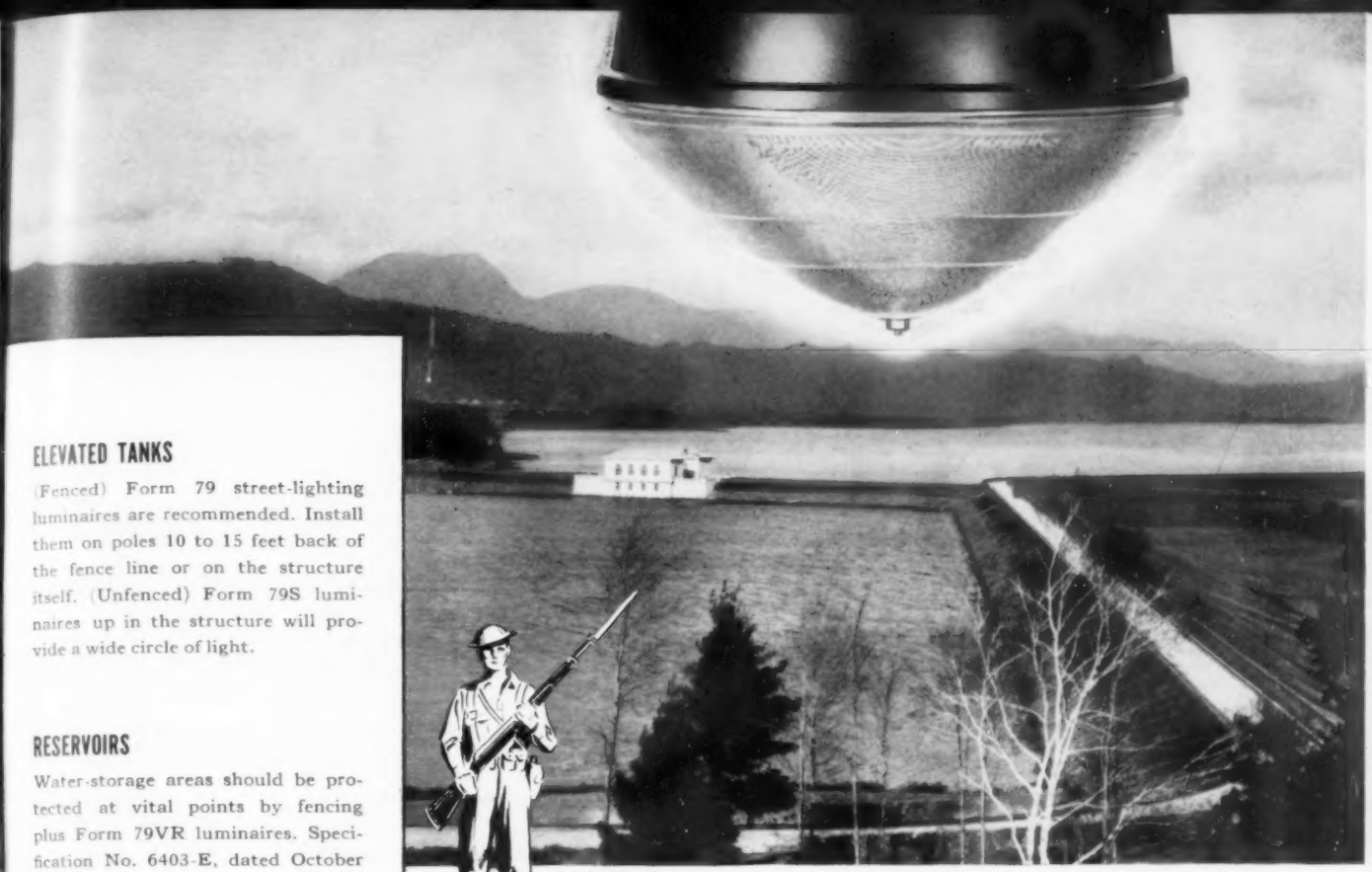
213. Electric floatless controls make possible exceptionally close control of liquid levels in wells, tanks, and reservers. Free literature regarding these controls may be obtained by writing the B/W Controller Corp., 2200 East Maple Road, Birmingham, Mich.

Insurance for Municipal Properties

214. Insurance specialists of the Home Insurance Co. report that in surveying insurance requirements for many municipalities, they have been able to save as high as 20 per cent in insurance costs and at the same time furnish up to 20 per cent more protection. For further information regarding this service, write to the Engineering Dept., The Home Fleet of Insurance Companies, 59 Maiden Lane, New York City.

Street Lighting for Safety

215. Union Metal engineers can show you how safety lighting can help you keep traffic rolling after sundown with less effort and fewer accidents. For further information and literature on street lighting standards, wrtie to The Union Metal Manufacturing Co., Canton, Ohio.



ELEVATED TANKS

(Fenced) Form 79 street-lighting luminaires are recommended. Install them on poles 10 to 15 feet back of the fence line or on the structure itself. (Unfenced) Form 79S luminaires up in the structure will provide a wide circle of light.

RESERVOIRS

Water-storage areas should be protected at vital points by fencing plus Form 79VR luminaires. Specification No. 6403-E, dated October 15, 1941, issued by the Quartermaster General, War Department, gives complete information on types of equipment, lamp sizes, spacing.

PUMP AND FILTRATION PLANTS

Special protection must be given to apparatus and structures of strategic importance to the city. The apparatus itself should not be highlighted, but areas around it should be covered with light. Frequently, the best installation is floodlights located on the structure and pointed outward.

SEWAGE-DISPOSAL PLANTS

In general, fence lighting with Form 79VR luminaires is recommended.

VITAL BRIDGES

Light the piers and abutments. With the supports lighted, trespassing and malicious property destruction are discouraged. With only the roadway lighted, the ground and water levels are in the shadows and it is necessary to patrol with electric lanterns. Guards carrying lanterns are not only excellent targets, but also have limited vision.

Guard Against Sabotage by LIGHTING VITAL AREAS

Are you depending on protective lighting to help guard against property damage? *Then you're doing the right thing.* Saboteurs may slip by guards and barriers but they can't evade a well-planned protective lighting system.

Form 79VR luminaire with the universal-bracket for vertical and horizontal adjustment

Because it is of primary importance to detect the intruder before damage is done, attention must be directed first to boundary lighting. Our Form 79VR, the newest G-E luminaire, is first choice for this job because it "reaches out" farther for better uniformity of illumination. It does things previous luminaires wouldn't do. For example, it gives an adjustable band of light parallel to the fence. With the unit vertical, the band is approximately 20 feet wide. Tilted, it lights a zone up to 200 feet wide.

There can be no substitute for complete and careful illumination engineering. To save a lot of experimenting, to find the right combination of equipment at the start, ask our nearest office for the services of a G-E lighting specialist. Because of his long and intimate experience with tough lighting problems he's a good man to know. *General Electric, Schenectady, N. Y.*

General Electric and its employees are proud of the Navy award of Excellence made to its Erie Works for the manufacture of naval ordnance.

GENERAL ELECTRIC

Survey Shows Possibilities Of Increased Revenue

Photo courtesy Canadian Pacific Ry.

Neglect of Meters Blamed for Losses

Proper Meter Maintenance Program Strongly Urged

From paper presented at Toronto Convention, A. W. W. A.

TORONTO—A survey of the meter maintenance practices of a group of municipalities, including Canadian cities of over 30,000 population and U.S. cities of between 100,000 and 200,000 population, proves that today water utilities cannot afford to install meters and then neglect them, forgetting that they are really "precision instruments" and that proper repair and testing will repay many times the time and money spent.

A meter maintenance program, such as outlined here, will reduce the cost of waterworks operation; lengthen meter life; and result in a distinct improvement in revenue . . . not by increasing the cost of water to the consumer, but by revealing unsuspected leaks and waste, thereby also conserving water and reducing useless pumping.

Recommendations

1. Test all meters when purchased.
2. Remove them after a certain period of time or after a certain total consumption, or combination of both.
3. Test them when brought into the shop for repairs, keeping a record of these tests.
4. Repair them carefully, especially the chambers and gear trains, keeping a record of repair costs, both parts and labor.
5. Test them after repairs, requiring a high percentage of registration on a 0.25-g.p.m. flow.

Such a procedure will without a doubt result in distinct increases in water department revenues.

Even though your city or town may have some difficulty in getting new water meters today, you still can greatly increase the accuracy and lengthen the life of your present meters by promptly putting into effect a proper program of testing and repair. Money saved the consumer through proper meter maintenance can be invested in

VICTORY BONDS

NEPTUNE METER COMPANY • 50 West 50th Street • NEW YORK CITY

Branch Offices in CHICAGO, SAN FRANCISCO, LOS ANGELES, PORTLAND, ORE., DENVER, DALLAS, KANSAS CITY, LOUISVILLE, ATLANTA, BOSTON.

Neptune Meters, Ltd., Long Branch, Ontario, Canada

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Vol. LVII, No. 4 The American City April, 1942

Utilizing the Nation's Labor Force

The Work Projects Administration—Its Peacetime Record and Its Potentialities as a Military Adjunct

By Major John P. Hallihan
Director, Municipal Engineering Section, Work Projects Administration

IN a situation where the necessities of war require the utilization of all the material and human resources of the nation, an organization already in operation as a construction force, in immediate readiness to serve in a similar capacity on work of military importance, becomes an asset of high value.

No such organization has been available in any previous war, but the desirability of utiliizng manpower ineligible for service as combat troops has been foreseen. In the past several years the operations of the Work Projects Administration in the United States and possessions have included extensive rehabilitation of military posts, the betterment of road communications, and the provision of water supply and sanitary facilities. In many cases, these operations met immediate needs not anticipated in authorized army appropriations.

The sudden expansion of these requirements, made imperative under various conditions, offers a field for further collaboration by WPA to the extent of its resources and labor limitations, which may be amplified to fit new conditions as authority may direct.

In this operation, much time may be saved in using the worker registration methods that were set up in the early days of the formation of relief works programs and that have been continued and expanded in the operations of that program. The inventory record of men employed, unemployed, and available covers the whole forty-eight states and is reasonably complete.

In determining the probable extent of utilization of the WPA as a military adjunct, it may be useful to review the reasons underlying its creation in 1935 and its accomplishments in the ensuing period.

Depression Characteristics

The record of the last 150 years in the United States* shows seventeen periods of from one to five years' duration, prior to 1930, in which the drop below normal or the economic line between prosperity and depression was from 10 to 20 points.

In most of these cases up to the beginning of the Civil War, the drop was sudden, the duration comparatively short, and the recovery aided by fortuitous conditions. After the Civil War, the pattern changed. While the drop from the economic mean to depression was generally rapid, the recovery became increasingly slow. These changes in pattern reflected the more restrictive conditions and the technological advance in the use of machinery instead of hand labor. The recovery was, however, always left to individual initiative.

Up to 1930, the greatest of these depressions was in the two-year period beginning the latter part of 1920, in which a drop below the economic mean reached 27 points. In the 1930 depression, the drop in the first year exceeded the 1921 depression and in the third year descended to 49 points below normal. It was not until the middle of 1934 that this drop was reduced to a fluctuation around 30 points continuing until 1935, when it started up on a fairly regular ascent, reaching the normal line at the end of 1936, retreating again to 37 points below normal early in 1938, since which time it has been slowly climbing and in the middle of 1940 was still fluctuating from 5 to 10 points below the normal line. This depression, termed by General Ayres the "Secondary Post-War Depression," has been not only twice as serious, but has extended over ten years, or more than twice the period of any previous depression.

Remedial Measures

The full effect of contraction in industry by reason of lack of market at home as well as abroad was not wholly visible in 1930, and the measures taken to relieve the consequent unemployment, while unprecedented in the use of federal funds, consisted principally of loans to states for direct relief and loans and grants to railroads and other self-liquidating enterprises. It was quickly learned that these measures were not sufficient to meet the problem of finding employment for those who had lost, perhaps permanently, their previous occupation.

In seeking the means for replacement of opportunity to work, various experiments were tried in 1933 and 1934. The urgency for municipalities to initiate plans for construction or improvement of needed public services found them generally unprepared, deficient in necessary state and charter legisla-

* See American Business Activity Since 1790—14th Edition—October 1940—Brigadier General Leonard P. Ayres, Director of Statistics, War Department.

tion, faced by dwindling tax revenues and exhausted credit. For these two years, the government was forced to assume practically the whole burden of developing relief work programs in order to obtain the greatest possible salvage in useful work from the federal funds that would otherwise be necessary to expend for mere subsistence of the unemployed.

The magnitude of the job and the necessity of consolidating all relief works programs under a single administration was not fully realized until the end of 1934. The Emergency Relief Appropriation Act of 1935 permitted the creation of such an authority by Executive Order. The Works Progress Administration so created found the ground partially cleared through the experience of the various state relief administrations, the Civil Works Administration, and the Federal Emergency Relief Administration, which had operated since 1933. The scope and extent of federal assistance required to overcome municipal inertia in the development of projects had been generally determined, as well as the proportionate sponsor contribution, and the necessary methods of operation had been fairly well outlined. While there were no precedents other than had been furnished in the preceding relief work operations, the methods of utilizing unemployed labor were seen to be not essentially different from those practiced by any contractor doing work in a foreign country where untrained labor was supplied by government levies, with substitution of fresh levies at frequent intervals, requiring recurrent training.

Restrictions on Employment and Wages

It was necessary to determine the capacity and skills of the labor which must be furnished as to 90 per cent (later 95 per cent) from the relief rolls. In order not to interfere with the supply of skilled labor available to private construction and manufacturing enterprises, the wage paid must always be sufficiently less than prevailing wages in industry to make a return to established industry attractive. From the limited personnel that could be drawn from the unemployed not on relief rolls and paid the prevailing wage, it was necessary to develop a nucleus of key men to serve as instructors and foremen. The problem was made more difficult by the fact that a force trained in one community could not be transferred to another community beyond a limited radius of transportation.

The engineering design of the projects and development of working plans for construction were made definitely the responsibility of the sponsor, which the regulations provided must be a political subdivision or other agency made eligible under the Emergency Relief Appropriation Acts. As a further obligation, the sponsor was required, in addition to his contribution, which must be in cash, equipment, or materials effective in the execution of the project, to assume in event of discontinuance of the appropriation available to the WPA, the responsibility of completing the work already begun so that it could be utilized by the community for the purpose intended.

Responsibilities of the Work Projects Administration*

While the policy of WPA is not to assist in the design of projects nor the preparation of plans for work in which it participates, it exercises a measure of control in requiring the plans to be in accordance with recognized engineering standards. Sanitation projects must be approved by the State Department of Public Health. Projects for soil and forest conservation are referred for approval to the Department of Agriculture and the Forest Service respectively. The Division of Fish and Wildlife passes upon the drainage of swamps, and the National Park Service coordinates projects for improvement of parks.

The WPA operates under centralized control as to allocations of funds, engineering integrity of plans, and adherence to recognized standards of construction, but it is decentralized in respect to execution of the projects approved, which are initiated and carried through as they fit into the relief works program in each state.

In the early stages of this operation, WPA was expected to assist political subdivisions only to the extent of the deficiency in the sponsor's own funds; but in some cases a disposition developed on the part of the sponsors to conserve their own funds in the greatest possible degree, and it was finally found desirable to prohibit federal funds to be furnished for more than 75 per cent of the cost of all projects within the state. In actual practice over the whole period, from July 1, 1935 to June 30, 1941, the proportions averaged 79.4 per cent from government funds and 20.6 per cent from sponsor's funds. The amounts provided by project sponsors, however, have increased each year since the WPA program was initiated, and in the fiscal year 1941 totaled nearly $548,000,000 or about 31 per cent of the total cost of projects operated by the WPA.

Assistance in the purchase of materials was limited by law to a definite sum per man-month of labor employed, but it was made possible to favor projects of high usefulness provided the total aid for materials and equipment did not exceed the specified average of $6.00 per man-month for all the projects in the state. (Exceptions since 1940 are for projects certified by the Secretaries of War and Navy as important for military or naval purposes.)

Analysis of the skills and experience of the available workers demonstrated that it would be necessary to develop work opportunities in both construction and non-construction operations. Consequently, non-construction projects were developed which offered opportunity for employment of those skilled in clerical work, in technical research, and in professional work and services, as well as the great number of women also deprived of employment by the depression in industry. These non-construction operations amount to nearly 22 per cent of the whole relief works program and have been highly productive in maintaining the morale in that field.

* The Works Progress Administration was renamed Work Projects Administration on July 1, 1939, when it became a unit of the newly established Federal Works Agency, under Reorganization Plan No. 1 (prepared in accordance with the Reorganization Act of 1939).

Scope of the WPA Program

At one time or another from the beginning of WPA operations through June 30, 1941, approximately 8,000,000 different persons have had jobs on WPA projects. The average number employed annually during the period ranged from 3,014,000 in the fiscal year 1939 to 1,700,000 in the fiscal year 1941. Such of the accomplishments of these workers as are measurable in physical terms have been summarized and are available in considerable detail. A glance at the highlights of the work completed during the six-year period ending with June 1941, shows that the ramifications of the program embrace almost every activity of public interest. The basic necessities of the community, as water supply, disposal of domestic and industrial wastes, improvement of roads and streets for individual and collective transportation, public buildings, recreation facilities, airports and water-front improvements, have been foremost in the number of projects and volume of accomplishment.

In the non-construction field, WPA achievement has been significant also. Provision of clinical and other public health activities improved the health of millions of children throughout the country, and the furnishing of school lunches has been a continuous activity. Adult education has been provided and eagerly availed of by large numbers, and sewing rooms producing garments for the needy have been an important part of the activities of the Community Service Division. Education in housekeeping arts and the preserving of surplus food are an important part of the services rendered to municipal welfare.

The enumeration of these accomplishments presents only a picture of the magnitude of the work performed, but conveys no idea of the infinite patience and pains that were required to develop the abilities of men and women who suddenly found themselves with no assets but the will to work, and frequently with little or no training or experience in the type of work offered to replace their former activities.

Since the development of the defense program, WPA has expanded its training activities, most of which are now conducted under a separate division. These activities include the national defense vocational training project under which workers receive training in occupations needed by defense industries. Refresher courses are provided for persons having some experience in the required occupations, and preemployment courses are given for those who wish to learn new skills. In addition to the training being given in vocational and other schools, some of the WPA trainees are receiving direct training on the job in industrial plants engaged in production of defense materials.

A recent analysis of military needs in the way of access roads and improvements to military training camps and the national airport network, revealed that the work done by WPA since 1935 has materially reduced the volume of work that would otherwise be required, and in whatever section of the country these military needs become imminent, the labor necessary can be almost immediately secured through the use of the WPA organization.

The versatility, competence, and decentralized availability of WPA has been found to be highly valuable in the operations of national defense importance, in which it is now increasingly engaged. It appears evident that for national defense purposes, if WPA did not exist, a similar organization equally responsive to immediate need would have to be created.

Possibilities

The operations of WPA have been of educational value in making clear to municipal authorities the advantages of advance planning of a comprehensive, instead of piecemeal, character for basic community needs. Many communities are being assisted by WPA in the prosecution of such studies and surveys.

Future operations, secondary to wartime demands, will no doubt give preferential status to projects having national as well as local importance. Among these may be visualized the first-stage improvement of unimproved rural roads to relieve the weather-bound situation of a large section of the farm population; the expansion of water supplies and purification plants and the elimination of pollution of the streams from which the water supplies are drawn; all projects affecting the public health; and the elimination of railroad-highway grade crossings menacing public safety. Such projects will furnish the large-scale employment and territorial coverage necessary, but will require adequate preliminary study now in order that they may be certain to be available for the next cycle of depression that history teaches is the economic corollary to all wars.

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Early Clean-Up Campaign Urged To Help Civilian Protection

PROMPT cleaning up of yards, vacant lots, and street margins, to help protect the community against possible incendiary bombing, and systematic attention to fire hazards in basements, attics, and store rooms are urged by the National Clean Up and Paint Up Campaign Bureau as a wartime service to the nation. The Bureau points out that:

"Early cutting of weeds and grass and removal of dead leaves and other inflammables from yards, vacant lots, and street margins is an especially important service in the Campaign this year—particularly in areas where enemy bombing with incendiary bombs is considered likely or possible. Incendiary bombs would find ready tinder for starting brush fires which could easily spread to buildings and which also would act as pilot lights to outline targets for the bombers. Such cleaning up while the vegetation is still green also, to a large extent, prevents the development of ragweed and other pollen blamed for hay fever, and should, incidentally, yield a considerable lot of junk, metal, paper, etc., to assist in the government's wartime salvage campaign. These three elements (1) fire prevention, (2) health, (3) salvage, give the lot-cleaning feature triple significance at this time, and should be stressed."

—An effective "V" leaflet suggesting various wartime activities is obtainable from the Bureau's headquarters at 1500 Rhode Island Avenue, N. W., Washington, D. C.

British Lessons in Refuse Conservation

Or Where To Find Ten Destroyers, 10,000 Tanks, and 10,000 Anti-Aircraft Guns

By W. S. Foster
Engineering Editor, The American City

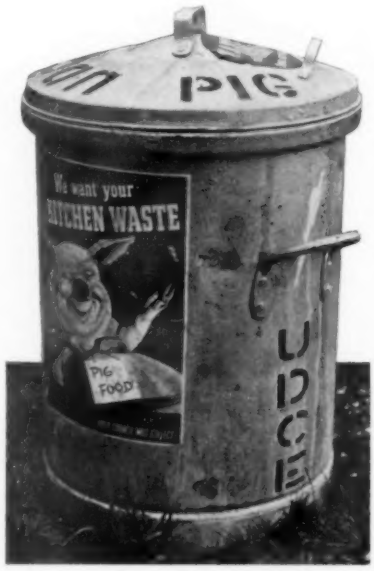
"DON'T say 'My little bit won't count,'" runs the British Ministry of Supply's appeal to housewives. "That's what Hitler would like you to feel. You would not throw away a bullet, a bomber part, a soldier's blanket, feed for hogs—those are the things your household waste provides."

And a part, at least, of the British housewife's answer can be found in a statement made by the Controller of Salvage last September—that in the salvage campaign enough metal, alone, has been saved to build ten destroyers, 10,000 tanks, and 10,000 anti-aircraft guns.

As it seems now in our own country, this has been a hard lesson to drive home to the British people. At the outset of hostilities, there were no apparent shortages and only a minimum of rationing. Like ourselves, the British did not have the strong instinct of conservation that one finds in the people of the Continent. But today, the success of their salvage campaign, the fervor and ingenuity with which it was carried out, makes an imperative lesson for municipal officials on this side of the Atlantic.

Added Duties of the Council

Obviously this program has not been easy. It has added considerably to the duties of the British municipal councils. It has created complications to the housewife and has necessitated a patriotic educational program. The British view it as the citizen's duty to waste nothing. Some substances are so extremely valuable that local authorities are legally compelled to collect them. There are no left-overs in this British program. The government instructs the housewife to separate the waste into four containers. The first is for paper and rags; the second, bones; the third, scrap metal; and the fourth, food wastes.



There are no "left-overs" in the British salvage program

Paper and rags in the first container, she must keep clean and dry. Instructions rule out cellophane, and also grease-proof and carbon paper. Bones, except fish bones, she puts in the second container. British ingenuity has made bones 75 per cent usable. Glue needed for airports now comes from British kitchens. Bones are a source of fertilizer. Fat for the manufacture of explosives comes from them also.

Scrap metal, no matter how old or rusty, goes to the third container. As an example, old flashlight batteries formerly considered useless are now being reclaimed for brass, copper, zinc, and graphite—all essential war materials. Food wastes going to the fourth container require particular attention by the housewife. This valuable source of hog food must not include anything containing soda or acid or mold. Lemon or orange skins, tea leaves or coffee grounds, fishbones, salt, or disinfectant must be eliminated.

It should not be suggested that the amassing of this waste was done without difficulty and complications. Complications increased particularly in the rural areas where collections were less frequent. Finally the Women's Voluntary Service developed a method that has met these difficulties. They arranged for the household collection of bones, waste paper, and scrap metal to be taken to a central place in the village. A monthly collection then is made by the salvage officer, trucking this refuse to a main storing place convenient to several villages.

Garbage as Hog Feed

Garbage is being increasingly used in local hog-feeding lots. According to the last report, over 13,000 pigs were being fed on local kitchen waste by municipal authorities alone. Also there are 235 "pig clubs," as well as an uncounted number of farmers using this source of hog feed. British authorities have developed a processing method to more efficiently handle this garbage and facilitate its use. They concentrate it in a steam jacket working under pressure equipped with a beater which reduces the mass to a homogeneous pulp. Fully cooked and sterilized, this produces a feed that is ready for use by the stock feeders. Fumes are condensed as far as possible and the effluent is chlorinated. Non-condensable gases also are chlorinated to reduce odors.

The food value of this concentrate should not be overlooked. Tests made by H. E. Woodman, School of Agriculture, Cambridge University, showed that hogs fed with a daily combination of slightly more than 13 pounds of the concentrate and one pound of standard hog food showed an average daily

gain of 1½ pounds. On an air-dry basis, they found that pound for pound the concentrate is equal in feeding value to their standard recommended hog-feeding mixtures. This, of course, would be subject to change with the different types of garbage typical of the locality.

The Waste Food Board is installing 30 concentrating plants in different areas for treating food wastes so that they may be distributed to wider areas and made available for feeding larger numbers of hogs and other livestock.

Another interesting feature of this reclamation program is the collection of sheep's wool left on hedges and fences. School children collect this and are paid market rates by the Wool Control Office. School children also collect acorns and horse chestnuts for hog food, as well as medicinal herbs, to save shipping space for imported drugs.

The paper campaign also has been given emphasis. "The Ministry of Supply needs 100,000 tons of waste paper," Lord Beaverbrook announced last October. "At present we use 25,000 tons of shipping to import much of it from North America. If we can collect it in this country, we can divert that much tonnage to carrying munitions to Russia."

Offices, libraries, and shops responded by turning out accumulated stores of bills, ledgers, telephone directories, and books. Various offices began to examine their files, usable pasteboard, and paper used only on one side. The Post Office recovered about 50 miles of red tape to be put to useful purposes.

Proper Conservation

Many developments have come from these campaigns: check forms are smaller; railway tickets have become thinner; newspapers have long ago reduced their size and the number of sheets; envelopes are being reconditioned; and milk bottle caps are being re-used. Paper is needed for food containers for the troops, for rifle cases, and for shells. One old envelope will make a cartridge wad; a ton of paper will produce material for 9,000 shell fuse parts, 1,500 shell containers, or 47,000 boxes for small arms ammunition.

The many tons of scrap metal, bones, kitchen waste, and paper roll into formidable totals. However, the invaluable results of this campaign may best be illustrated by saying that, according to the Controller of Salvage, it saved about 250 precious ship voyages.

As stated, previously, this program has not been, nor is it now being, conducted in England without considerable trouble and inconvenience to both the city officials and the individual housewives. Nevertheless, it is being accomplished and represents a real contribution by each individual to the all-out war effort. It would be well to point out that when our government states that the entire nation must work toward an ultimate victory and that this victory will not be achieved without industry and sacrifice on the part of each individual, then our government is referring to work such as this.

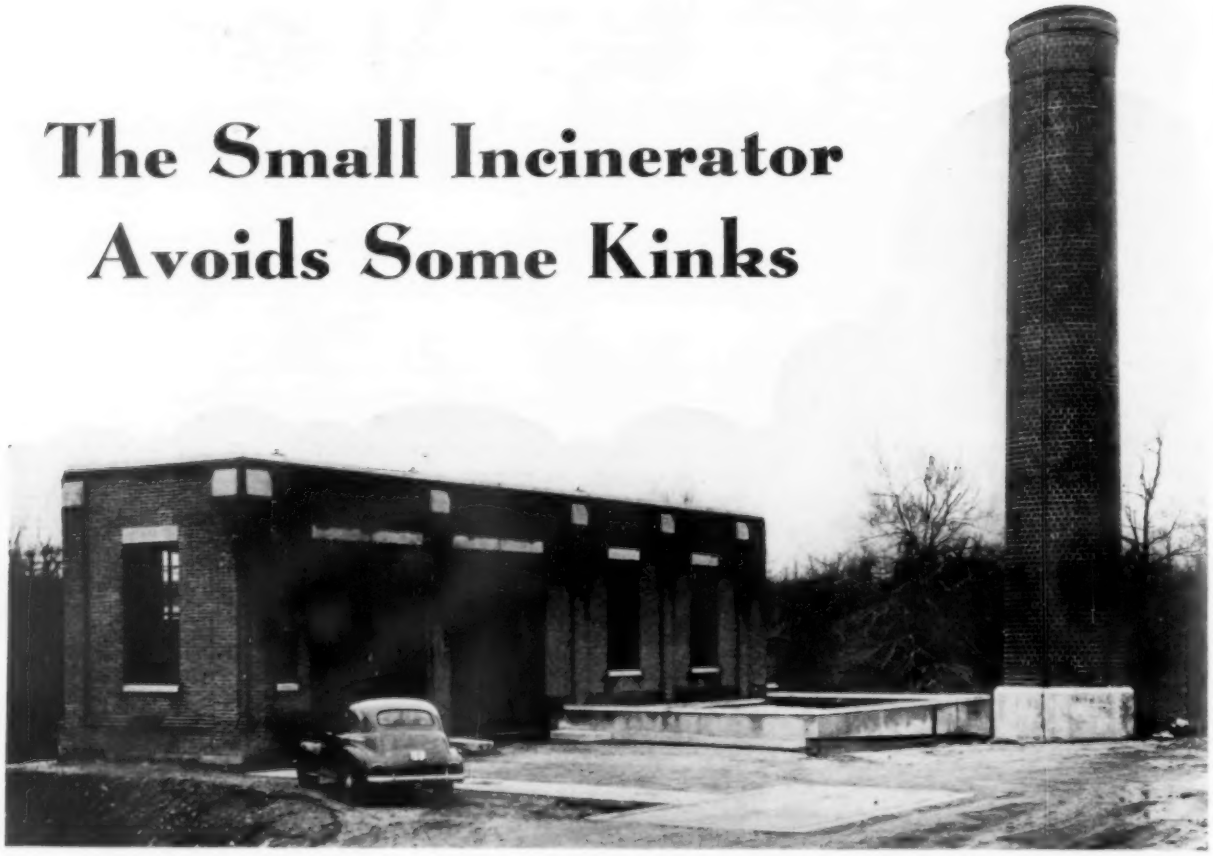
When viewed in the uninteresting light of being merely scrap metal, waste paper, and other refuse that will merely add annoyance to a municipal government's duties, it is not particularly attractive. However, when considered in the light of potential guns, equipment, and other materiel for our armed forces, it becomes quite different.

It took a defeat at Dunkerque to bring about this program in England. We have seen the program and know what it requires. Its success in this country, as in Britain, rests primarily with the aggressive leadership of our municipal governing bodies.

Left: The British housewife separates the refuse into four containers, one for waste paper, one for tin cans, one for bones, and the last for garbage

Right: In the smaller villages the garbage is collected by carts for hog food

The Small Incinerator Avoids Some Kinks



Simplified Handling of Refuse with an Electric Bucket Features the New Incinerator at Darien, Conn.

IF a garbage incinerator can be streamlined, if streamlining can mean getting the most out of your equipment, arranging your plant so that it can be operated by a minimum of steadily employed personnel, by the layout of the grounds so that trucks may maneuver without confusion, and by having a plant that is cleanly operated and attractively designed and constructed, then the new incinerator at Darien, Conn. meets that classification.

Of course there is a story back of this incinerator. It did not leap full grown in this little wooded area off the Boston Post Road. Darien, a community of 10,000, actually is a suburb of New York City. It has no industries and only a small business district. However, it does not pretend nor intend to be anything more.

Originally, garbage was disposed of by land-fill methods, and as facilities became less and less available, garbage disposal became increasingly a problem. Each time a new site was selected the town was confronted with complaints from angry residents preventing its use.

Land-Fill Area Troubles

"It soon became something of a game," stated Walter A. Bates, Town Engineer. "Garbage trucks would roam the streets hunting for suitable sites. We would begin a day by selecting a place for the refuse, and end the day by having to abandon it. Mornings we would come to work and discover garbage dumped surreptitiously along the Post Road during the night. It was at that point, when the town was in this predicament, that the Council called in Henry W. Taylor, New York City consulting engineer, for advice."

Darien is unique in having a suitable place available for an incinerator that is both the geographic and population center of the town. The plant is located in a wooded section hidden from view by topography and foliage. This site, consisting of 12 acres of wooded land, includes a low area screened by foliage which will provide a space for direct disposal of domestic ash and the inert residue from the incinerator for an estimated 50 years.

The working arrangement of the plant is particularly interesting. Refuse is dumped into a 14 x 36 x 16-foot deep receiving pit. From here it is picked up by a 1½-yard Blaw Knox single line bucket operating on a monorail and dumped into either of two 30-ton single cell Pittsburgh-Des Moines incinerators. The illustration on the next page shows the operator dumping the bucket over the first of the two cells. Refuse then enters the incinerator furnace, with the amount of the charge being controlled by

positive acting sliding gates. Temperatures of from 1600° to 1800° F. are maintained for optimum burning conditions. So far, the operators have been able to maintain this condition by the burning of the refuse alone; however, if sufficient combustible material is not included in the refuse, this deficiency can be compensated for by the use of an auxiliary Johnson oil burner in each unit. Fly-ash presented some problems at first. However, these have now been met by the strategic placing of baffles in the incinerator chambers.

Operation of the Hydrojet

Disposal of the residue from the furnaces is especially interesting. Beaumont Birch hydraulically operated ash gates release the furnace residue, which is in turn transferred to a common ash storage pit by means of the positive action of a Hydrojet trough. This trough consists of a 24-inch C. N. I. "channel pipe" served at the upper end by a high pressure jet that transports the material as indicated in the illustration. It will be noted that a steel plate protects the concrete wall of the pit against the erosion of the jet and its suspended material.

The ash storage pit is located beyond the furnaces so that the same bucket that handles the refuse can be used to empty this pit and deliver the incinerated residue to truck at grade level outside the building. This arrangement eliminates the expense of a three-story structure or an underground ash tunnel.

An interesting sidelight in the operation of the Hydrojet is that the water used for its operation is drained back into a small reservoir and reused, thus avoiding expensive loss of water each time the operator disposes of the residue.

In observing the plant, one is struck by the cleanliness of the operations in contradistinction to what one sees in many of the older type incinerators. In all cases, handling of the refuse is under mechanical control of the operators; hand methods need never be used. A well-engineered layout permits all conveying to be done by either the bucket or the Hydrojet. The bucket may be operated from either of two remote control push-button stations on the upper floor of the building. The Hydrojet, as well as all operations of the incinerator furnace, may be conveniently controlled by the operator on the stoking room floor.

Future Growth

In designing the plant, the engineer anticipated future growth and demands on the incinerator. The chimney was designed for twice the load it must carry now, and temporary constrictions have been added to reduce the draft for present demands. Likewise the receiving pit was designed oversize to allow for expansion. The north side of the building, the side not visible from the approach, was constructed so that it would be easily removed to allow for the placing of additional units.

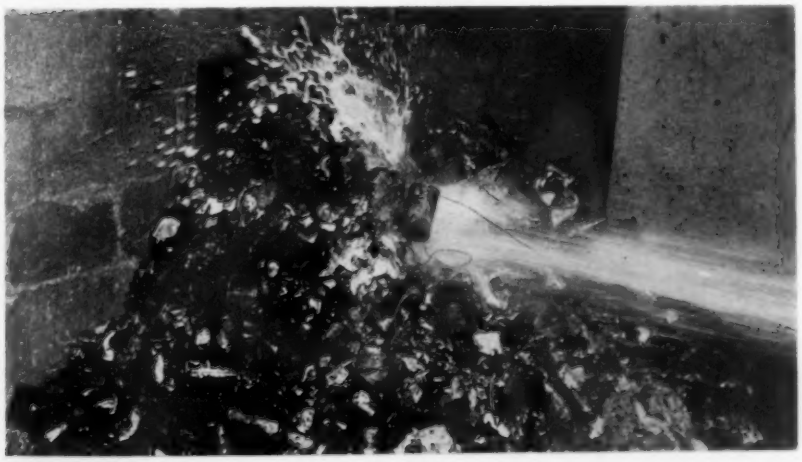
Charging the incinerator hopper. The ash-storage pit, served by this same bucket, is just beyond these hoppers

At present the building is heated by coils in the main incinerator breeching. Water circulates by gravity throughout the building; each radiator is provided with an individual circulator to furnish additional heat as required. A supplementary oil-fired hot water boiler is available to furnish heat when the incinerator units are not in operation. This additional heat is automatically provided by thermostatic control at the hot water storage tank.

Collection Procedure

Garbage at Darien is collected by private trucking operators who charge a fee to the householders. These operators are licensed by the town. Regulations require that ashes be separated from the rest of the refuse, thus making it possible to deliver only garbage and rubbish to the incinerator. At the present time an average of 12 tons of refuse per day is being handled by the incinerator. This does not include the domestic ashes which are disposed of separately. An end compartment in the truck has been

(Continued on page 95)



The positive action of the Hydrojet moves the residue to the ash storage pit for subsequent disposal

Municipal Fire Insurance

A Review of New Manual of Fire Insurance Coverages and Recommended Procedures for California Cities

DURING the last few years a great deal has been said and written about the problem of fire insurance on municipally owned property, but a report prepared by the Committee on Municipal Insurance of the League of California Cities, dated October 3, 1941, is a comprehensive approach to the solution of this problem. It ranges all the way from a discussion of insurance rates and forms to the determining factors in any intelligent consideration of a self-insurance plan. Municipal officials and members of the insurance fraternity alike can profit by using its recommendations.

Separate Classification

In the introduction to its report, the committee disclosed a study it made of the cost of fire insurance over a ten-year period on municipal property in 159 California cities. This study revealed that, while the ratio of losses to premiums paid was well below the average for all classes of property, the average annual premiums involved were not sufficiently large to justify a recommendation that municipally owned property be rated separately from other property on an experience basis.

Self-Insurance

The following extract summarizes the committee's conclusions regarding the feasibility of municipal self-insurance:

"For the guidance of any city contemplating such a practice, self-insurance is generally considered feasible when the following rules are adopted and observed:

1. The number of risks to be covered should be sufficiently large to permit the orderly working of the law of averages. An insufficient number of risks means a lack of spread of risk.
2. The amount of coverage on each risk should be small and fairly uniform. The inclusion of several very large risks often will prevent the proper application of the law of averages because a total loss involving one of the large risks might wreck the whole self-insurance plan.
3. Extremely hazardous risks should be excluded from the self-insurance plan and should be placed elsewhere.
4. Risks should be independent of one another. There should be no conflagration or catastrophe possibilities.
5. If a self-insurance fund is created, it should be done gradually. Only a small portion of each risk should be placed in the self-insurance fund each year until the entire risk is assumed by the fund. Until such time as the self-insurance plan has been put in full operation, the balance of the risks not included in the self-insurance plan should be insured.
6. Little dependence should be placed on a 10- or 20-year loss record for any individual city.
7. The revenues or reserve fund should be adequate to absorb a large loss without bankrupting the city.
8. Any self-insurance fund should not be used for any other purpose. At all times the fund should remain untouched except for loss payments and payments of the expenses of operating the fund.

"A careful study of these rules will show that the establishment of a self-insurance fund or the meeting of fire losses out of current or reserve funds is not practical for the average or small city."

Place Responsibility

The committee recommends that the city manager, finance officer or some other municipal officer be held responsible for the insurance program. The report also suggests that authority might properly be given to a reliable insurance adviser, usually a local insurance agent or broker, who would receive a large proportion of the business to compensate him for his services, or that the city might negotiate with its local association of insurance agents as a unit, relying upon the association to appoint a committee to deal with the city's insurance problems and to distribute any commissions involved.

The report goes on to state: "Under any circumstances, the plan adopted should provide for the city to retain control and administration of the program . . .," the insurance adviser or local agents' association providing technical assistance in handling details of procedure and policies set up by the city.

Determine Insurable Values

If the city can afford it, the committee recommends that an appraisal of municipally owned property be made by a reliable appraisal company. If this is not practical, the committee recommends that original contract costs and building plans, when available, be used as a basis for the computation of present values, adjusting them in accordance with the changes indicated by a reliable index showing fluctuations in building costs.

Where neither of these methods is practical, the report recommends that estimates of present values be made by contractors, architects, or city engineers.

Type, Term, and Form

The report recommends careful consideration of the possibilities of loss caused by various hazards against which insurance may be purchased; that insurance be purchased for a term of five years in order to secure maximum economy in premium cost; that it be arranged for approximately equal amounts of the insurance to expire each year in order to distribute the premium cost; and that these expirations be arranged to occur at one time during the year so that the cost of maintaining an adequate record of the insurance will be reduced to a minimum.

The form of coverage in each case should be discussed with a local insurance agent, and the report offers a suggested policy form. It suggests blanket insurance, and also the 90-per cent average or coinsurance clause, for the economy in premium cost that may be effected.

Rates

On the subject of fire-insurance rates, the report makes this significant observation: "Rates between two risks or between cities cannot be compared unless both have the same type of building construction

and fire protection, identical policy forms, and carry the same percentages of coverage." It urges that a careful analysis of the rates be made in each instance, using the actual surveys employed in the making of the rates, and further recommends a similar check-up at regular intervals.

Select Reliable Insurance Companies

Although the report recognized that there are acceptable non-stock insurance companies, a preference for capital stock insurance companies is indicated because general reductions in fire insurance costs can best be accomplished through organizations maintained by capital stock companies and because cities, more than any other governmental agencies, are the recipients of many indispensable services such as the following which are furnished without cost by capital stock company organizations:

1. Purchases of fire-fighting equipment by cities are based upon the National Board of Fire Underwriters' Standard Specifications for Municipal Apparatus.

2. Fire equipment, such as hose threads and connections, has been largely standardized through the efforts of the National Board of Fire Underwriters. In cases of emergency, extra equipment from neighboring towns can be used easily and quickly because their hose lines are standardized and connections can be made without delay.

3. Periodic checks are made by engineers to see that the equipment is properly maintained to obtain the highest efficiency and performance.

4. Recommendations are made regarding proper location of fire-fighting equipment. This independent, scientific approach to such difficult problems has aided many cities in securing greater efficiency.

5. Inspection by local and national organizations enables cities to determine rating and standing of a local fire department as compared to national standards.

6. Fire-alarm systems are installed in accordance with the standard regulations, and before acceptance by the city, the workmanship and equipment must be approved by the Fire Underwriters. An approved system, which results in a reduced insurance cost, is periodically inspected to be sure it is in proper working order. Fire-protection engineers plan for fire-alarm boxes to be located so that the system will be the primary method of turning in alarms, with the telephone system as a supplemental method.

Other phases of the problem discussed in this report involve the distribution of insurance to local agents and brokers, the maintenance of adequate records of insurance by the city, and the procedure to be followed in the adjustment of losses.

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Manchester, England, Uses Loudspeaker Vans for Blitzinformation

BECAUSE all persons concerned with civil defense work in Manchester recognize that the transmission of information is of great importance in connection with rescue work, first aid, and demolition, and other wartime emergencies, a complete information service has been established to serve the residents of that city before, during, or after a bomb raid.

In a big town or city in order for bomb victims to reach any central information office, it would be necessary in many cases to travel long distances, probably through bombed and often dangerous areas, possibly without transport. Therefore, it is considered advisable to decentralize as much as possible all the information services. With this idea in mind, the central information bureau has established 87 sub-information centers in various parts of the city where persons may seek advice without going to the central bureau; mobile information units ready to go to any heavily bombed area and to provide help and information on the spot; and, perhaps the most novel of all, loudspeaker vans to tour bombed areas.

A fleet of these loudspeaker vans, supplied by the Ministry of Information and working in close cooperation with the central information bureau, is available to transmit to the public instructions and information necessary in dealing with local problems after an area has been bombed. The vans are staffed with persons well known in the locality to be visited. Announcers have numbered announcements, any of which can be speedily altered at need by reference to number only. All departments and authorities pass the information to be transmitted by way of the information center to avoid confusion and overlapping. Messages normally are relayed to the vans through police headquarters by telephone. However, should the telephone system be disorganized, the police radio system may be used, and in the event that this service is overloaded, a corps of cyclist messengers has been formed to take the messages to the vans.

Representatives of the housing, national registration, and food control departments, the assistance board, the fuel overseer, the poor man's lawyer service, and the citizens advice bureau serve all branches of Manchester's information service.

—From *Local Government Service*, official Journal of the National Association of Local Government Officers, December, 1941. 27 Abingdon Street, London.

Ministry of Information Vans Tour Bombed Areas

A Sewage System Changes Hands

What Englewood, N. J., Did When the Private Utility Said No Improvements Could Be Made

By G. Russell Hartley
City Engineer

THE recent transition of a sewage system from private to public ownership at Englewood, N. J., has resulted in real advantages to the municipality. Rates have been reduced; vital improvements have been made, financed out of revenue at no cost to the taxpayer; a surplus has been turned back to the general funds; and the process of paying off the funded debt has progressed, leading to the debt-free ownership of this utility.

Formerly Privately Owned

This sewer system has been a privately owned utility in Englewood ever since sanitary sewers have carried away wash water to the brook. On several occasions in the past, the city has attempted to purchase the utility. However, it was not until 1940 that the Mayor and his council, together with civic-minded local citizens expert in the civil engineering fields, effected a transfer. A contributing factor also was that the state sanitary authorities had ordered certain improvements, and the private utility did not feel able to make them without increasing the rates.

The agreement, reached by negotiation, provided for payment of $790,000 for the 67 miles of the company's system. Finance arrangements allowed for the service charge schedule to be reduced by 10 per cent. Responsibility now rests with the city to operate the existing system and pay for the cost of a new modern disposal plant built in accordance with state health authority approval out of the service charge income. Bonds for the purchase of the existing system were sold, carrying less than 2 per cent interest charge.

A survey, conducted by the city engineering department, disclosed additional plumbing fixtures other than those covered by the utility records. Income from this source has increased the amount originally anticipated. Loss of income from unpaid accounts has been unusually small. From the first quarter of city operation, income amounted to more than $38,000 with less than $200 unpaid.

As the city in former years collected directly from the sewer company in taxes an amount in excess of $38,000, it was decided that the Sewer Division would continue to pay over to the general fund an amount equal to this and other tax charges not readily computed, or a total yearly amount of $40,000. The purchase of the system has, therefore, not affected the city tax rate even though this brought about a loss in assessable valuation of over $650,000.

G. Russell Hartley, Englewood City Engineer, now manages the city sewage system profitably on a service charge basis

Inasmuch as the system is operated as a utility, the city will continue to own the entire collection system of trunk sewers and laterals. There will be no assessment for main extensions. The practice has been established to require a prospective developer to deposit with the city the full cost of any extensions required to serve his development. After houses are occupied and start paying rental, there is a refund paid back to the developer equal to 3½ times the annual revenue to the city, the refund not to exceed the cost of the sewer. In most cases this will provide for a complete refund of the cost of the lateral sewer. This practice prevents the use of city funds to finance developments, either successful or unsuccessful. The contract for the sewer also provides for ownership by the city of the sewer extensions from the time work is started on the new sewer.

The problem still remains of providing adequate sewage treatment as recommended by the State Department of Health. There are at this time two methods under consideration. The first is the erection of an individual plant for Englewood, and the second is the construction of a trunk sewer jointly with one or more of the nearby municipalities facing the same problem. It appears that the war emergency, with the shortage in construction materials, will force postponement of either improvement, thus allowing the accumulation of surplus funds in anticipation of such a project. To date $54,000 has been spent on capital improvements out of excess revenues. This has provided a new pumping station, recently placed in operation, the start of a new trunk sewer system, and various extensions of mains to serve new areas.

The Mayor of the city at the time of the purchase was Clarence A. Clough. C. W. Floyd Coffin was President of the Council in 1940 and is now Mayor. The Chairman of the Public Utility Committee, Donald A. Quarles, remains as before in the same position. The Finance Committee Chairman was D. Van Alstyne, Jr.

Water Conservation Projects Save City Water Supplies

Wahpeton, N. Dak., Has Well and Surface Supply Following Complete Loss of River Supply

By H. T. Hintgen
Superintendent
Water Department

THE city of Wahpeton, N. Dak., situated at the convergence of the Bois de Sioux and Otter Tail Rivers which form the head waters of the Red River on the North, on a point of land which divides the watershed of the Gulf of Mexico from that of Hudson Bay, is a small but progressive little city rising from the log huts of the pioneers of the early seventy's to a thriving modern city with the dignity of a large metropolis. Incorporated as a city in 1885, many years elapsed before much was done to insure an adequate public water supply. Private wells seemed to suffice until a private water company laid a few mains connected to a drilled well which reluctantly gave up several hundred gallons of water daily to a handful of overcharged consumers.

Town Acquires Plant

In the late ninety's a number of the more progressive citizens urged the city fathers to take over the existing facilities of the private water company, enlarge it, and connect to an 8-inch well drilled down to the water bearing strata known as the Dakota sandstone. This well was capable of delivering over 100 gallons per minute with a crude air lift. The water obtained was of excellent quality, but the method of pumping and the design of the screens caused it to pump as much fine sand and silt as water. A pumping station with a small settling basin was then constructed, but even this failed to remove the fine silt and minerals held in suspension. However, it was the best that could be done under the circumstances, and the city grew and prospered despite this handicap.

In 1914 a municipal dream was made into a reality, and a modern filtration plant was constructed with an intake line crossing the Red River to the Otter Tail River above the city of Breckenridge, Minn. It was necessary to secure water from the Otter Tail River because of the sewage outlets into the Red River below the filtration plant. The plant was equipped with steam pumps, an underground storage reservoir of 750,000-gallon capacity, and a 125,000-gallon elevated tank 100 feet high. Two sand filters with a maximum capacity of 750,000 g.p.d. have proved adequate even under present-day conditions, but many other problems had yet to be solved even though we had a "new plant."

Through the years, the excessive cost of steam operation was draining the funds of the Water Works Department, and the increasing demand made upon the plant by consumers soon taxed the limited capacity of the steam pumps. Electrification of the plant, with the installation of electrically driven centrifugal pumps, appeared to be the solution of both these problems.

Flat Rates Drained System

Only a few years after the installation of the electrical pumps and equipment, increasing demands made upon the plant began to worry the city officials, and an investigation as to the causes was planned. The water plant was pumping into the mains some 700,000 gallons of water per day to a population of a little over 3,500 people. This immediately indicated excessive waste by the consumers and possible defects in the underground system. The investigation revealed that all the consumers were on a flat rate (only half a dozen services were metered), which caused careless use of water supplied and a per capita consumption far in excess of normal demands. Water meters were installed as a result of this investigation, and some 750 service lines were tested for underground leaks.

Metering Economies

On completion of the meter installations the daily demand dropped from 700,000 g.p.d. to 250,000 g.p.d. A schedule of sliding scale water rates was established, and it was found that the quarterly bill for the average consumer was less than under the flat rate charge and that the large consumer was now paying his share of the cost of operation in proportion to the amount of water used. In the past five or six years of operation under the schedule of water rates adopted, the Water Works Department has shown a net profit of approximately 30 per cent of the gross volume, and yet comparisons will indicate that our rates are lower than in many cities which have outputs four and five times greater.

Special Sprinkling Rates

We have incorporated in our rate structure a feature which is somewhat unusual and, we might say, unique in its application. Wahpeton has what is known as a

"special sprinkling rate," established with the idea of encouraging better lawns and gardens. Under this rate schedule every residential consumer is given the benefit of an extremely low rate during the months of April through September, which does not materially affect the revenue of the department but which has done much to beautify the city, especially during the past drought periods. Under this schedule the average water consumption for the months of October through March is billed at the regular rate, and any excess is billed at 10 cents per thousand gallons. For example, if a consumer uses an average of 15,000 gallons during the two winter quarters, he will be billed in the two summer quarters for 15,000 gallons at the regulate rate, and any excess over 15,000 will be billed at 10 cents per thousand.

Water Supply Disappears

In the fall of 1931 or, rather, the early winter of that year, a very unexpected and even an undreamed of incident occurred which very easily could have resulted in a catastrophe. Over night our water supply was completely cut off. We awoke early that December morning to find that we had completely used up the supply of water stored in the pond above the dam on the Otter Tail River and that the river above the dam had frozen to the bottom, due to lack of the usual early snow and the extremely cold weather. An uncontrolled and unregulated stream-flow in the Otter Tail River was probably the main cause of our difficulties. The two municipalities of Wahpeton and Breckenridge, with a total population of approximately 6,000, faced a problem which naturally had to be solved immediately. A large utility which had a power dam some 50 miles up-stream came to our assistance by releasing all the water stored up for power purposes, and by using snow plows and hundreds of men, a channel was made in the ice to aid the water released in its 50-mile trip to our intake lines.

The city of Breckenridge, Minn., was completely out of water for seven or eight days, and one can easily imagine the reactions of 2,700 people who were forced to transport water at 50 cents per barrel from small wells miles from town, a city without fire protection, sanitary conveniences, and other accompanying hazards and inconveniences.

We in the city of Wahpeton were less unfortunate than our sister city across the river. The old original city well, abandoned when we built the filter plant, was again pressed into service, and we were able to supply our city by pleading with our people for conservative use during the emergency.

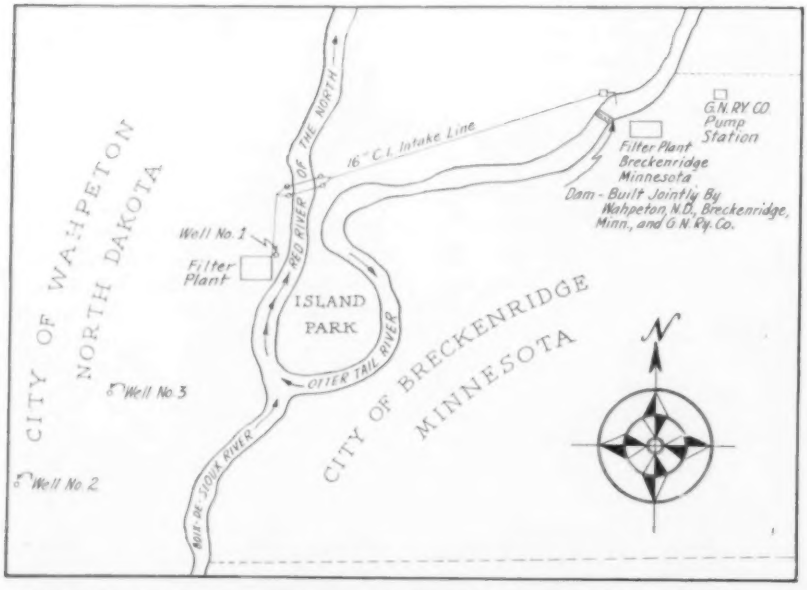
Conservation Dams

The experience of that winter left a lasting impression on our officials, and immediate steps were taken to safeguard our water supply and to avoid a repetition of the causes of our previous plight. We recognized the fact that the major cause of the river failure was because the stream-flow was uncontrolled and unregulated with no provision made to store the spring run-off. This run-off caused floods in the spring, the drying up of the river during the hot summer months, and the resulting freeze-up during the winter.

Because of the activities of the officials of Wahpeton and Breckenridge, there was born a municipal organization known as the Minnesota-Dakota Municipal Water Conservation Association. The cities of Fargo and Grand Forks in North Dakota and Fergus Falls, Moorhead, and East Grand Forks in Minnesota immediately joined hands with Wahpeton and Breckenridge to jointly aid in the solution of a problem common to all.

The effectiveness of the organization soon became evident. We secured aid through the State Conservation Department, and a series of permanent dams were constructed at the outlets of six lakes on the Otter Tail River chain; also the river was cleaned as a CCC stream cleaning project. A large dam, built by federal and state agencies just out of Breckenridge, has storage capacity for a year's supply for both cities and has definitely assured us of a continued supply of water at all times. The Association has been able to secure legislation which establishes lake levels and gives it control of the dams so that a definite and constant stream-flow is maintained.

The city of Wahpeton, in addition to safeguarding its river supply, has in the past six years drilled a number of artesian wells in various parts of the city. These wells are all equipped with deep well turbine pumps directly connected to the mains and deliver approximately 300,000 g.p.d. of a high quality soft water.



Map showing the location of the dams and filter beds for the Wahpeton, N. Dak., and Breckenridge, Minn., water supplies

AN OLD SECTION, AND A MODERN SUBURB OF CARACAS, VENEZUELA
According to plan, the former will be replaced by a workingmen's model quarter

"Urbanización" in Caracas

Problems of Growth in a South American City

By CHARLES C. GRIFFIN
Associate Professor of History, Vassar College

HOW to make modern urban life possible in a city that still retains much of its venerable colonial character is the number one problem of Caracas, Venezuela's upland capital. More than 100,000 new inhabitants strain its housing facilities and overcrowd its narrow streets. The population of the city has doubled in the amazingly short span of five years. This growth has not been due to immigration, which is negligible, but to a long-continued crisis in Venezuelan agriculture and stockraising which has encouraged a cityward drift. Under the tyranny of the late General Vicente Gómez the tendency was more gradual, but since 1935 it has become an avalanche as the vastly increased welfare expenditure of his successors, Generals López Contreras and Medina, has concentrated all opportunities for employment primarily in the cities.

The first result has been a building boom that continues in spite of the critical state of Venezuela's export trade and the resulting business uncertainty. The old city, of low, compact blocks of many-hued, tile-roofed houses, relieved here and there by a delicate church spire or the dome of a public building, stands airily poised on a long slope between the little River Guaire and the lower spurs of the overhanging Sierra del Avila.

Around the old city a dozen suburbs, old and new, are growing like mushrooms. Some show no visible plan; others follow the latest rules of modern city engineering. The former are agglomerations of shacks which house the very poor. Usually they are situated on land of little value on the steep slopes of nearby hills, without adequate water or sewage facilities. From most points in the downtown area one or more of these settlements are visible, picturesque in the distance as the motley colors of painted mudbrick walls and thatched or galvanized iron roofs stand out against the green hillsides, but less attractive observed at close range. Were it not that a splendid temperate climate and an almost ever-present sun permit outdoor life and counteract the overcrowding and lack of sanitation, those who live in these districts would be unfortunate indeed. Nature is cooperative in still other ways, providing swarms of vultures which serve as efficient removers of refuse in regions which the city white wings do not serve. The dwellers in these outlying districts, however, are better off than those who live in the even more crowded and less airy working-class quarters of the city proper.

Garden Suburbs

The garden suburbs stand out in marked contrast to these humble districts. El Paraiso, one of the oldest of these, shaded by magnificent trees hung with Spanish moss and creepers, extends along the bank of the Guaire and boasts some of the most stately gardens in Venezuela. Newer are the suburbs of the chain extending eastward from the city: San Bernardino, Los Caobos, La Florida, Las Delicias, Campo Alegre. In Gamboa, another development nearer town, a Rockefeller-financed company, is putting up what will be the best tourist hotel in this part of South America. These new suburbs are real estate developments organized by local capital with foreign technical assistance. Throughout one sees evidence of undoubted civic sense as well as business acumen. Before lots are sold, pleasant,

sweepingly curved, broad, tree-lined, paved avenues have been provided, and lighting, water, and sewage-disposal facilities are also completed in advance. Building proceeds rapidly as real estate values rise.

The architecture of these new areas is extremely varied. One sees everything from Spanish Colonial to Century of Progress "modern." Some houses remind one of those in Parisian suburbs; a larger number recall Southern California residential areas. However one may react to style, the impression given by the solidity of the brick and concrete construction, the neat lawns and trim gardens cannot but be pleasant. Equally so to the North American are the avenues of flowering trees; acacias with orange-colored flowers and long sword-like green pods, mahoganies, glossy-leaved mangoes, and a host of unfamiliar varieties.

Tackling Traffic Congestion

The city government has taken up seriously the problem of rebuilding the city proper to provide adequate traffic facilities. Foreign architectural experts have created a master plan whose general outlines have been approved, but its cost is too great to warrant rapid progress on the great avenues, diagonals, and open spaces which will eventually appear, or on the great new public buildings which will adorn the center of the city, until the economic situation becomes less uncertain than at present.

In the meantime, little can be done to relieve an acute traffic problem. With few exceptions, the city streets are just wide enough for two cars to pass, and the rule, therefore, is one-way traffic. Any driver of an automobile can easily understand the annoyance of constant driving on such thoroughfares. Even with parking limited in time and to one side of the street, jams are constant during the busy hours of the day. The continual digging-up of the streets, almost as much a feature of Caracas as of New York, complicates the problem, and slow-moving hand trucks, bicycles, delivery vehicles, and two-wheeled horse and donkey carts furnish further obstructions to motor traffic.

Buses Replace Trams

In view of these troubles, the efficiency of the bus system, which has almost completely superseded the electric street railway, is truly amazing. Specially designed, narrow buses, locally built on North American chassis, carry an enormous traffic load at fares equivalent to three cents in U. S. currency for trips that may extend for four or five miles. The routes are well worked out to interfere as little as possible with other vehicles, and form a radial system connecting the center of the city with all suburbs and outlying districts. There is also a circular route that follows the outer circumference of the city proper. The main inconvenience is the lack of adequate terminal loading platforms in the central downtown area.

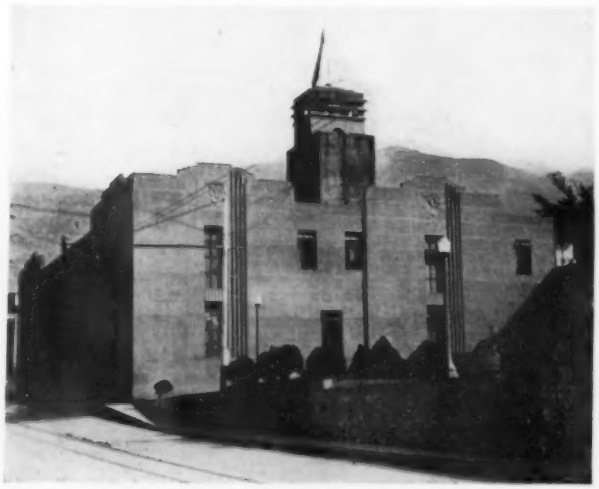
The skill of the drivers who manipulate these vehicles through unbelievably narrow streets and around the blindest of corners at breakneck speed is amazing. Many a newcomer has been frightened nearly out of his wits, but traffic rules are strictly enforced and serious accidents are few. Furthermore, there seems to be a sixth sense that guides the drivers, who seem to take delight in tooling their unwieldy vehicles in a manner reminiscent of the grace, sporting instinct, and accurate judgment of distances of a first-class bull-fighter.

Problems of Street Widening

The Caraqueños have shown good judgment in not further complicating their problems by build-

Right—Widening of streets in center of Caracas when new buildings go up

Below—The Fire Department Building, Caracas



ing skyscrapers in the North American style. New buildings vary between two and six stories in height and are required to be set back some distance behind the old building line, thus creating wide spaces in the adjacent streets. In the course of time the entire center of the city will have wider streets as old buildings are replaced.

Foot traffic in the main shopping center is almost as difficult as the vehicular. Sidewalks are often not over three or four feet in width, and many citizens have not given up the leisurely habit of earlier days, stopping to visit with the friends they meet, regardless of the jams their gatherings create. A pre-Christmas shopping tour is recommended to any one who complains of crowded streets at home.

Public Utilities

As can be imagined, the rapid growth of the city has put a severe strain on the public utilities. The water system, which has grown up little by little, tapping a large number of nearby mountain streams, is not integrated. Consequently, part of the city often has water in limited quantities during the dry season while other districts have all they can use. Getting a new telephone is a major problem and one that calls for the highest gifts of patience, diplomacy, and persuasion. Lest any one assume that this is a symptom of the traditional spirit of "mañana," I hasten to add that the utility in question is operated by a subsidiary of a great international concern, and that the automatic apparatus in use makes telephoning a delight to foreigners, who need not master Venezuelan Spanish in order to get a connection.

Looking Forward

Those who love the charm of this ancient and graceful city look forward to a time when it will be one of the most comfortable and efficient, as well as one of the most lovely, South American capitals, but that hope, like all others in this year of grace 1942 will depend on the course of world politics, with which extricably involved.

third oil-producing country, is in-

"The Future's Temple Is the School"

THE following poem and comments are reprinted from the Annual Report of the School Committee and Superintendent of Schools of Stockbridge, Mass., for the Year Ending December 31, 1941:

DEMOCRACY

Increase tenfold the heavy guns,
Make long the range, make wide the bore;
Yet while ye face the mighty ones,
The foe slinks through your postern door.
Ye fight not flesh, ye fight not steel,
But dull unreason of the herd;
Tongues speak but what the warped hearts feel;
And ye?—your weapon is the word.
Go teach the street that wrong breeds wrong,
That men are brothers, equal born;
That from free lips, in speech and song,
Shall issue truth, rebuking scorn.
Your hope is in a race of kings,
A people wise and skilled to rule;—
Grave on youth's waxen slab these things—
The future's temple is the school.
(By BURTON EDGAR: From the Journal of Education, Florida)

"The future's temple is the school!"—a stirring challenge for the public schools of the United States of America, if there ever was one! And it comes during a period of crisis. What are the public schools of Stockbridge doing—for the war, and the peace to follow?

We believe our first duty is to guide our boys and girls to appreciate and cherish the ideals of democracy. It is our function to so present our way of life that our children will see that it is a way worth fighting for. We must all believe it better to die for democracy standing up than to live for totalitarianism on our knees.

Our Junior Red Cross has been knitting and filling boxes for the soldiers. Our pupils are collecting newspapers and magazines for the OPM. We have plans for evacuation in the event of air raids, and defense courses in auto-mechanics and metal work are in progress. Plans have been formulated to turn over the whole school plant for conversion into a hospital and headquarters for canteen service. This is what we are doing and plan to do for the emergency.

In addition to preparation for the emergency, the schools have to prepare for the preservation of democracy and peace after the war. Our task is to furnish the materials and tools with which our children may build democratic habits, scientific attitudes, critical and logical thinking, flexible and well-rounded personalities, and intelligent reasoning and behavior.

WILLIAM J. DEXTER,
Superintendent of Schools.

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Antidote for Air Raid Jitters

FUN, not fear, when the siren sounds—that's what the National Recreation Association is advocating for air raid alarms. The fun is to be provided in emergency recreation kits designed to insure boys and girls, young people and adults against "air-raid jitters" from hours of strain and anxiety.

The kits would include simple, popular games and play equipment for groups gathered in homes, schools, apartment and office buildings to wait for the "all clear" signal. They are described in three newly published leaflets available from the National Recreation Association.

"There is no better way of sustaining the family morale and peace of mind than by playing together," advises the home kit leaflet entitled, "When the Siren Sounds." Among play supplies suggested for a home "shelter room" are children's toys, books, games, puzzles, playing cards, modeling clay, bean bags, chalk and pencils, and a portable battery radio.

"Meet Your Neighbor" is the appropriate title of the activity leaflet prepared for apartment house dwellers who may be forced to spend hours with next-door neighbors whom they have never met. Managers of apartment and office buildings are advised to prepare a kit of recreation materials and equipment; select a person or committee to play and conduct programs.

Activities for school children are described in the third leaflet, "Waiting for the All Clear." Administrators are cautioned to prepare emergency play kits and to assign to each group a teacher familiar with recreation activities for large groups of children.

Air raid kits are one of the answers to the threat of nuisance raids, and recreation leaders believe that an adequate play program of normal, enjoyable activities for young and old will help build up a strong air raid morale.

Milwaukee Develops Armored Bomb Truck

Outmoded "Black Maria" Redesigned by Police Force To Carry Bombs Instead of Bad Men

By P. C. Ziemke

REALIZING the precarious task that presents itself whenever a bomb or other explosive must be removed through a busy street, the city of Milwaukee, under the direction of Police Chief Joseph T. Kluchesky, has designed a conveyance that it appears will carry a suspected package with a minimum of possible injury either to the police or the public.

The conveyance developed has been subjected to exhaustive testing. Police explosive experts constructed bombs of every description loaded with varying strengths and combinations of dynamite and black powder. By firing these in the hopper of the conveyance, they were able to test and remedy structural weaknesses that became evident.

The department selected a 1928 Stewart patrol wagon, still serviceable but now outmoded. From this they removed all the body with the exception of the driver's cab. On the exposed frame they bolted and welded a heavy steel bottom built of five layers of ½-inch boiler plate. The sides and the sloping portion of the bottom were built up of 2½-inch oak planking between ½-inch steel plates. The planking, tests showed, afforded a degree of resiliency that was better able to overcome the effects of the blast. Police department mechanics reinforced the rear end of the cab with ½-inch plate, and replaced the rear window with 1½-inch bullet-proof glass. Windshield sections and headlight lenses also were replaced with shatterproof glass.

Experimental explosions demonstrated that with the body of the reconstructed truck built in this manner the effect of the blast tended to dissipate itself harmlessly upward.

The construction of a suitable container to be used in carrying the suspected bomb out of the building presented another troublesome problem, since most of the material light enough to be used either did not have sufficient strength or would be destroyed by fire.

The container finally selected was made of sisal fibre in the form of a mattress. This was fastened securely to a ¾-inch pipe framework. A stout basket-like braid woven out of ¾-inch manila rope around the pipe framework further strengthened the outside of the conveyance. Dimensions of the basket are 48 x 30 x 30 inches. It is further equipped with a caster-mounted dolly to facilitate pulling with a rope.

Although tests showed that the basket satisfactorily confined the flying fragments, department officials decided to construct another barrier between the men and the suspected package. They built this in the form of a light mattress out of a combination of sisal fibre and cotton waste divided into three layers. The layers were bound securely with upholsterer's canvas banding and covered with blue-and-white canvas ticking. Heavy twine was used in tufting the shield. Additional equipment includes three 12-foot pike poles for lifting the packages.

Procedure Followed

In actual practice, officers approach the package shielded by the protective mattresses. Other officers, also protected by shields, bring up the basket mounted on its dolly. When the package is safely placed in the basket, patrolmen tow it by means of 50-foot hand lines. Arriving at the truck, the driver hoists it into the hopper using the attached crane. The body shields are thrown on top and lashed down. The package may then be delivered to a suitable place for further examination.

The police department has already used this conveyance to transfer a suspected package that proved to be a dud. However, department officials well remember the bomb they brought to the central police station for observation in 1917. This bomb exploded killing nine officers and one woman passerby.

Showing how police officials pick up the suspected package, put it in the reinforced container, and finally into the armored truck for transport

Can Our Water Supplies Be Sabotaged by Bacteria?

This Is Possible but Not Likely If Proper Precautions Recommended by Authorities Are Observed

By J. W. KELLOGG
Assistant Director, North Carolina State Laboratory of Hygiene

AMONG the problems of those responsible for the purity of water supplies during wartimes, none is more vital than the possibility of contamination by bacterial cultures. We must consider the possibility of such bacterial pollution, the precautions which should be taken to prevent such occurrences, and remedial measures if they should occur.

We should look at this problem sanely and without hysteria. In my opinion the danger is being over-estimated. In areas where there are defense activities and where the supply is vital both for industrial use and human consumption, we should take all reasonable precautions. In other areas, we can see no reason for more than the usual foresight against accidental or intentional contamination of the supply. There would seem to be much more probability of malicious damage to the physical part of the water plant than of the introduction of pathogenic bacteria or poisons. The ordinary treatment processes, properly applied and supervised, should eliminate the possibility of such trouble.

We must admit that in the present world conflict we have a new and treacherous adversary. Novel methods and appliances of warfare may be used against both the military and civilian population. Among the pathogens which might possibly find use, are the typhoid and para-typhoid bacilli, the dysentery bacilli, the cholera vibrio, and the parasitic amoebae. To this list may be added the more rare disease organisms which are not usually considered water-borne, including the brucella, the B. tularense, and the anthrax bacillus.

Let us consider these in order. The first three are similar in that they are non-sporing and are easily killed by chlorine or other disinfectants. They thrive on ordinary culture media and if introduced into natural waters might survive

Courtesy of *The Intake*
An armed guard patrolling a western water reservoir

for weeks. The introduction of any of these might start an epidemic which would reach great proportions. Against typhoid fever we have an effective weapon—the typhoid vaccine.

Dysentery in the epidemic form is particularly a disease of armies. Vaccines and serum treatment have not yet proven effective in preventing this disease. Vaccination for cholera, or for typhoid, must be repeated at two-year intervals to be effective.

The fourth in order, but possibly first in importance, is the parasitic amoeba, Entamoeba histolytica, the cause of amoebic dysentery. In the vegetative stage the amoeba is easily killed. However, the encysted form is highly resistant to ordinary doses of chlorine. The cysts are large enough to be removed from water by a properly working sand filter, but if they should be introduced after the water passes through the filters, they would constitute a serious menace. The cysts are capable of persisting in the water for days or weeks, and are the form by which the disease is transmitted from host to host.

Other possibilities exist in the brucella, the B. tularense, and the anthrax bacillus. The first two will not survive long in water, while the third has limited possibilities of infection except through a break in the skin.

We have considered the pathogens most likely to be used in subversive attempts to contaminate water supplies. All precautions should be taken to prevent their introduction to the supply, but necessarily all precautions might fail in their purpose. The first and most important measure, of course, is effective chlorination of all supplies. However, with chlorine alone it is not practical to carry a sufficient residual throughout the distribution system; with the addition of ammonia it is possible. The ratio of one part ammonia to three or four parts chlorine seems to be the commonly accepted dose. Higher ratios may be tried, even as high as one to ten. In any event, we must conclude that chloraminated water is the only safe water.

For the protection of the public, there is one other measure that should be adopted—general vaccination against the typhoid group. We do not have effective vaccines for the other groups mentioned, but that should not excuse us for failure to use the weapons at hand against the most probable cultures to be used to pollute a water supply.

—From an address delivered on Jan. 28 at a one-day Symposium on Wartime Protection of Public Water Supplies, Raleigh, N. C.

For Myriad Municipal Uses

Glass

GLASS, like plastics and the metal alloys, is a material of growing usefulness, and the manufacturers, busy making the things which sell today, hardly realize the potentialities of this remarkable product. Chief interest now is in glass as a substitute for priority materials. During the last few years glass has become a familiar building material, for walls, partitions, grilles, and railings, as well as for windows.

Municipal governments use millions of dollars' worth of glass every year, not only for windows, but also in the forms of street-lighting luminaires (in which in addition to the globes, glass is taking the place of the drafted Alzak aluminum), traffic-signal lenses, conservatories and greenhouses, architectural shapes, laboratory devices, windshields, and distribution-line insulators.

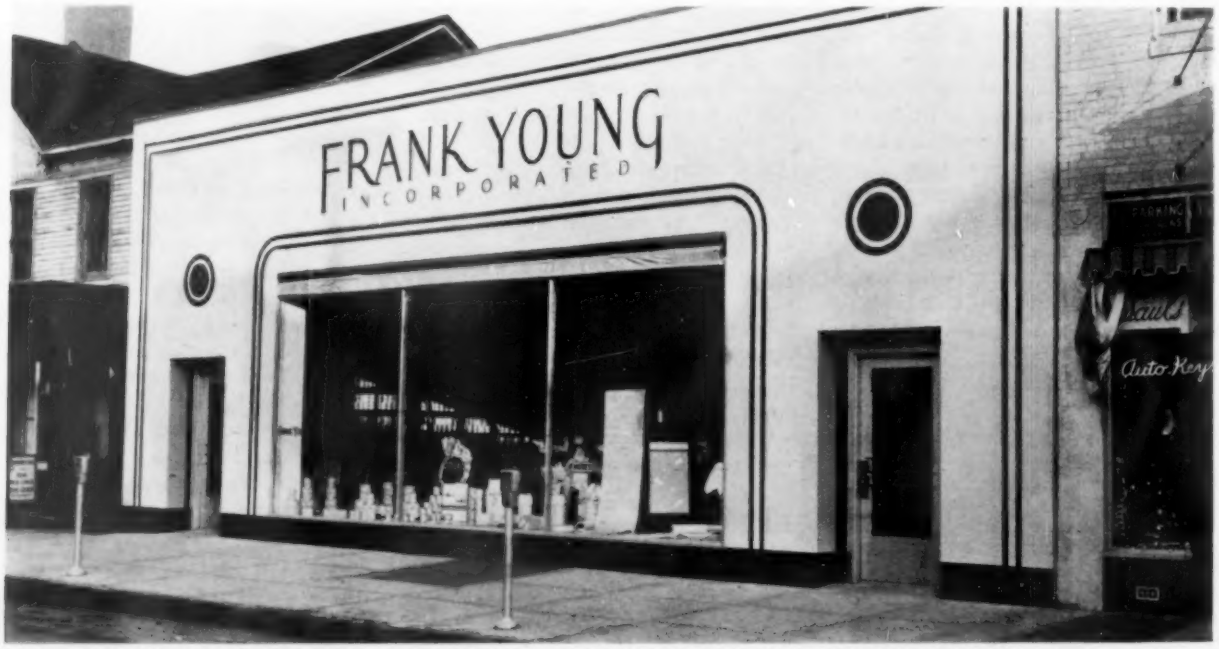
Research in glass has taken two major lines—qualities of glass, and shapes for practical use. Glass can be tough, beautifully accented and colored, can admit the full sunlight or exclude 50 per cent of the heat rays, can borrow light, withstand a 460-degree change in temperature, and carry load. A rapid survey of the types of glass now readily available may not only emphasize the common uses but suggest to the city official new applications as well.

Cool and Serene

To avoid any obscurity whatever, let us transparently call these types by their trade names. For instance, if you wanted to glaze your pumping station or municipal electric plant, school or hospital with wired or unwired glass which would reduce glare and exclude heat, the Libbey-Owens-Ford Glass Co. would recommend Aklo, the new Blue Ridge glass with those qualities. Of the 100 per cent heat contained in sunlight, 52.4 per cent is represented by infra-red rays which are completely absorbed by Aklo. The remaining 47.6 per cent is divided between visible rays commonly known as the spectrum and the ultra-violet, which respectively contain 43.7 per cent and 3.9 per cent of the total sun heat. Of the total heat of sunlight, Aklo absorbs 70 per cent. There are several patterns of Blue Ridge Aklo.

Beautifying Main Street

Often a town or city desires to beautify the shopping district. The new street-lighting system will safeguard vehicles and pedestrians, but it also makes the store fronts more apparent. There's a glass to make these magical. One name for it is Vitrolux, a ¼-inch plate heat-treated, with color fused on one side, to be used where a translucent or luminous effect is desired. Chambers of commerce might find this glass profitable to its members. In this connection, get acquainted also with Tuf-flex ¾-inch heat-tempered glass doors, three to seven times as strong as ordinary plate glass, excellent for hospital and municipal airport terminal as well as for the city hall. Equipped with Lucite hardware, it makes an attractive entrance and, with Stanley door controls which open the door before you touch it, makes the "old-fashioned" door archaic. But the in-



A STORE FRONT OF GRAY VITROLITE WITH PARKING METERS AT CURB, IN HACKENSACK, N. J.
The new forms of glass are as modern as the parking meter, and Chambers of Commerce wrestling with a drab business district might start a boom by getting over to merchants a glass shown here in Hackensack, N. J.

herent qualities of Tuf-flex may suggest to the city engineer other uses. This glass can withstand a temperature change of *at least* 457 degrees. In the ¼-inch size, it is used where resistance to impact and a high tensile strength are necessary.

Fuel Savings

Double-glass insulation for walls, partitions and skylights, is now furnished by the new Thermopane consisting of two panels of ⅛-, 3/16-, or ¼-inch glass containing a dehydrated ¼- or ½-inch air space to form a unit hermetically sealed at all edges with metal. The insulating value can be read off in terms of coal or fuel oil by means of a Fuel Economy Calculator which the Libbey-Owens-Ford Glass Co., Toledo, will send without charge.

Decorative and Wire Glass

Under the Blue Ridge designation, some new and beautiful flat glasses are available in obscure and transparent forms, with either ordinary finish or the Satinol surface treatment which, seen on fluorescent-lamp fixtures, reduces the transmission of light only 3 per cent against 16 per cent with sand-blasting. The newest glasses are Louvrex, Flutex, and Reedex, having accents running uniformly in one direction, and Squarex and Doublex, combining accents running at right angles. They are not only decorative, but are effective in obtaining borrowed light. In usual glazing sizes, they can be set in frames to form large partitions and screens. This line includes a remarkably attractive wired glass, the wire plated with chromium.

Vitrolite is an opaque structural flat glass 11/32- to 1¼ inches thick, with a range of colors, for use as wainscoting, in halls, corridors; in operating, sterilizing, and diet rooms in city hospitals; in laboratories, and for walls and toilet partitions in public buildings—for instance, in court-houses in the Bronx and in Brooklyn and Jamaica, N. Y. It is non-absorbent, does not craze, resists alkalis and acids, meets modern standards of sanitation, and can be kept really clean at minimum cost. This glass is now produced in a load-bearing form called Glastone, 4 to 8 inches thick, suitable for complete façades as well as for partitions.

Thermolux is a new sealed unit for interior glazing, consisting of colored glass fibers pressed between two glass panels sealed at the edges. The fibers, about 0.0006-inch in diameter, create a diffused light, while imprisoned air develops an insulating value against the sun's heat in summer, against the winter cold, and against sound. It is used in ceilings beneath skylights, and for partitions and walls of offices, hospitals, and plants. To its insulating value it adds a colorful, soft, pleasing interior finish.

—For the sake of clarity this article presents and discusses municipal glass products from the point of view of one important manufacturer. Principal producers include Libbey-Owens-Ford Glass Co., Toledo, Ohio; Owens-Illinois Co. (glass block), Toledo, Ohio; Mississippi Glass Co. (figured and wired glass), New York City; American Window Glass Co., Pittsburgh, Pa.; Corning Glass Works (ovenware, lenses, laboratory glass), Corning, N. Y.; Pittsburgh Plate Glass Co. (window, flat, architectural, structural), Pittsburgh, Pa.; Pittsburgh-Corning Corp. (block), Pittsburgh, Pa.

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Sand-Asphalt Developments in Tallahassee, Fla.

Fine Aggregate Mix Shows Unusual Characteristics Which Are Eliminated by Stabilizing Effect of Slag

AN extensive bituminous surfacing program in Tallahassee, Fla., in the past 18 months, has led to the elimination of some undesirable characteristics of the sand-asphalt paving material through experimental stabilizing of certain batches with slag for specific service. The improvements were so great and immediate that the new mixture has been made standard for all residential street paving.

The Original Mix

The prepared mixed sand-clay base of the street is primed with 0.2 gallon per square yard of cutback asphalt prior to the laying of the mix. The sand-asphalt mix consists of bank-run sand with an acceptable grading. This is mixed with 25 gallons per cubic yard of an asphalt cutback having about 30 per cent naphtha, in 12-cubic-foot batches in a Kwik-Mix mixer, and in ½-yard batches in a Jaeger mixer. Material is then stockpiled for use when required, and this period allows it to cure sufficiently.

Laying the Material

The sand-asphalt mix is loaded by hand from the stockpile, is spread on the street by hand, raked, and then rolled with an 8-ton tandem roller. It was soon found that with this particular mix it was necessary to roll it in one direction, and that was downgrade. The material had been spread 2 inches thick to give a 1⅜- to 1½-inch mat when compacted. This mat would creep at points where cars applied their brakes, and at corners where they made reasonably fast turns.

Improved Stability

To eliminate the creeping of the sand-asphalt mix, experimental batches were made with 20 pounds of ¾-inch and smaller slag per square yard 1 inch thick, giving a mix with about 50 per cent of the slag that would be used in a Topeka mix. This sand-slag mixture was mixed with 22½ gallons per cubic yard of the cutback asphalt, and was first used at corners and for 75 feet back from corners where cars applied their brakes. It worked so successfully, and could be rolled to full compaction with the roller rather than leaving the compaction to traffic, that it has since been made the standard paving mixture for all residential streets.

Miller Walston is City Engineer of Tallahassee, Fla., in charge of street improvement and paving.

Street Improvement in Ames, Iowa

A Calcium-Chloride Stabilized-Gravel Base with Asphalt Top Meets with Taxpayers' Approval

By Arthur Johnston

DURING the past seven years the city of Ames, Iowa, has developed a program of paving with a stabilized-gravel, concrete curb and gutter which is proving of interest to numerous cities and towns in Iowa. Not only are cities becoming interested, but it is known that at least two of them, Webster City, and Winterset, arranged contracts for such paving in their cities, work which carried through the winter to provide improved streets for this spring.

Since 1934, when the first stabilized-gravel pavement job was started, partly as a work relief project, property owners have petitioned each year for more, and at present there are nearly nine miles of stabilized-gravel paving in this city of 12,555.

John Ames, city manager, who bears no kin relation to the city of his name but who has watched the city double in size in 20 years, reported that when this type of pavement was inaugurated in the residential districts back in 1934, a number of property owners were dubious as to the pavement's durability.

Interest Increases

But as the program developed and the first few blocks of stabilized-gravel is assessed to the benetests of fairly heavy traffic, owners began to appreciate this low-cost type of street improvement.

It is significant that for the past four years every stabilized-gravel project has been requested by property owners in petitions to the city council. In some instances where property owners resided on heavy traffic streets, in which cases the city engineering staff considered it best to use a higher type of pavement, it was difficult to convince owners that the stabilized-gravel pavement was not satisfactory.

Demonstrated Quality

Such conviction grew out of a circumstance three years ago in which a stabilized-gravel street was used for more than six months as a detour for the Lincoln Highway, which goes through Ames. This street carried a daily traffic of nearly 9,000 cars, trucks, and buses, and no pavement fault has developed since.

The city manager pointed out that "no promotional work has been done to sell this type of pavement to local home owners." However, the usual happening now is that builders planning to open a new subdivision improve streets with this type of pavement when the first few houses are constructed to encourage further building and sale in the subdivision.

Costs

A large share of this paving has been used in rapidly developing residential districts of moderate priced homes, and in some other sections where residents "got along" for many years with cinders.

Cost figures for the pavement for five years are as follows:

	Curb & Gutter lin. ft.	Stabilized-Gravel sq. yd.	Bit. Top sq. yd.	Seal Coat sq. yd.
1934	$0.87	$0.5920	$0.176	.....
1936	.71	.5573	.....	.....
1938	.85	.58	.0787	.0377
1939	.80	.65	.1197	.0357
1940	.86	.61	.132	.054

Of the total cost, only the cost of concrete curb and gutter and stabilized-gravel streets were given the fited property owners, while the cost of bituminous top and seal coat is paid out of the city's general fund.

The amount paid by the city is considered as the amount which would be the normal maintenance cost on the street. Actually, City Manager Ames reports, the maintenance cost has averaged less than maintenance cost on other types, such as cinders or gravel.

Progressive Construction

The construction of stabilized-gravel pavement here has been spread out over several years, although tests are now being made to apply finish coats of bituminous material the same year as the gravel base is laid.

The foundation of the pavement consists of a 3-inch base course of select pit-run gravel compacted with a roller. Then 3 to 4 inches of stabilized-gravel are added. This gravel contains 10 per cent clay and, in most instances, a quantity of calcium chloride to insure sufficient moisture for the effective bonding action of the clay.

The next year a prime coat of MC-1 asphalt is applied over the gravel, at the rate of 0.25 gallon per square yard. Following this the bituminous top coat is laid ½- to ¾-inch thick, composed of one-half gallon of RC-3 and 50 pounds of crushed stone to the square yard.

The pavement is opened to traffic for one or two years, after which the seal coat is applied. This coat consists of one-fourth gallon of RC-3 per yard and a blotter coat of sand.

Maintenance includes the application of additional seal coats about every third year, using 0.15 gallon of RC-2 per square yard.

Of the experiences gained here in using this type of pavement, one factor has been found to be of paramount importance. Good sub-surface drainage must be available to make this type of improvement successful. The only partial failure found in the city's nine miles of stabilized-gravel was found on a street where the sub-surface drainage was poor, and correction of the drainage solved that problem.

Power That Pays Its Own Way in a Rural Community

Odessa, Mo., Makes the Generating of Electricity a Profitable Community Enterprise

By William H. Gottlieb

THE 1,800 citizens of Odessa, Mo., have acquired a new 830-hp diesel power plant and it won't cost them an extra thin dime either as taxpayers or customers. In fact, they are anticipating reduction in both tax and power bills as a result of this shrewd Missouri horsetrading. Until August 1939, the community was served by a public utility, and the town itself purchased power to operate its water works, sewage pumps, and street lights. On August 1, 1939, Odessa put into service its own electric plant powered by two 415-hp Worthington diesels, and the saving in the cost of city-consumed power, town officials feel, is in itself sufficient to retire the entire cost of the power plant.

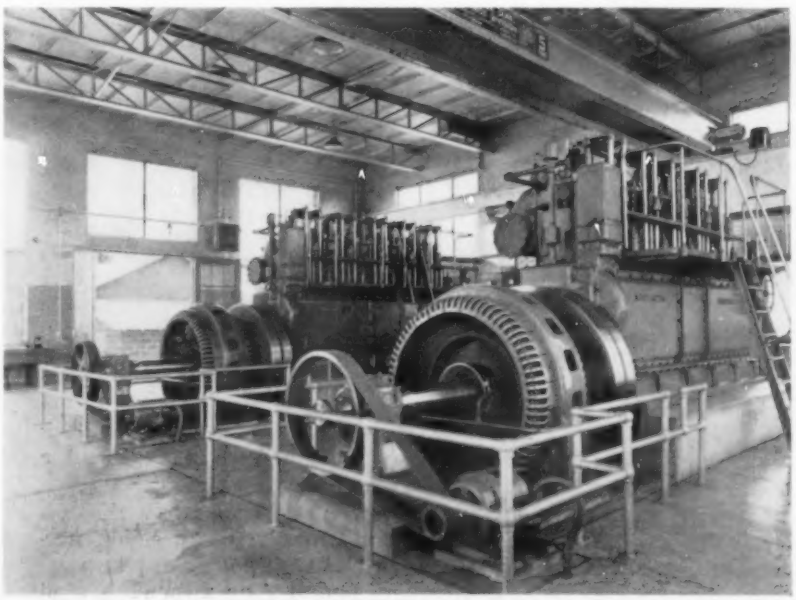
Diesel Economies

The success of this undertaking rests firmly on the operating economy of modern diesel equipment. In the first two full years of operation, the new municipal plant produced 1,838,800 kwhs for an operating cost of less than 6.6 mills per kwh. This includes fuel, lubricating oil, labor, maintenance, and supplies. With full allowance for interest and depreciation on both machinery and building, the total cost per kwh increased to only 9.9 mills. The accompanying table gives the full cost picture for this entire period. The omission of a "maintenance and repair" item is deliberate, for in two years of operation Odessa has had no breakdowns and no repairs. In the course of human events, this plant undoubtedly will have some maintenance expense, but in actual operating experience thus far all maintenance is represented in the items of labor and supplies. In fact, the allocation for labor is liberal, for only one man was added to the town's staff. The power plant and the water works are side by side on a high hill overlooking the town, and it is a simple matter for one man to care for both plants.

Odessa's record of economy is even more impressive when viewed in the light of current operating conditions. In designing this plant, the engineer took cognizance of the fact that consumption of electricity usually rises sharply in the years following installation of a municipal diesel plant. Odessa planned for the future rather than for immediate load prospects. As a result, the operating engine capacity load factor for the initial years inevitably is low. The peak load frequently betters 200 kw, about 65 per cent of one engine's rating, but the valley load falls as low as 55 kw, a load factor of less than 20 per cent. For the two-year period, the load factor averaged was about 35 per cent. This means, of course, that engines cannot show maximum efficiency and that the fixed costs of labor and depreciation loom large in the cost per kilowatt-hour. Regardless of this, unit costs have been exceedingly low.

Operating Economies

In spite of the load factor, fuel economy has been notable. The writer was given opportunity to review complete operating figures for the first 24 months that this plant had been in service. In the first seven months of 1941, with a load factor of just 36 per cent, the diesels produced 11.10 kwh per gallon of fuel consumed. Lubricating oil consumption, too, has been low, with the engines operating more than 6,000 rated hph for each gallon of lube. The anticipated doubling of plant production will bring even the total operation cost down near 7 mills per kwh.



Two 415-hp Worthington diesel engines furnish ample power economically for Odessa, Mo.

With load conditions as they are, it is necessary to run only one engine at a time with the second providing a complete standby protection. It is the practice here to run the engines alternately for a week at a time, dividing the service equally between them.

In planning for the future, Odessa took care to provide itself with a thoroughly modern, fully equipped power plant, capable of giving efficient service over a long span of years. The diesels are identical units, each of 5 cylinders, 13¼-in. bore and 17-in. stroke, of the four-cycle, mechanical-injection type. These Worthington engines develop their rated 415 hp at 360 rpm, and each drives directly a 356 kva, 2400 volt Elliott alternator with V-belted exciter.

The total absence of repairs must be credited in part to careful handling of the lubricating oil. Lubrication for the cylinders is supplied by mechanical lubricators and bearings by a force-feed circulation system. Oil is taken from the sump by an engine-driven gear pump and put through the engine under pressure. This circuit includes a filter and a cooler. At the end of a week's run, the oil is drained to a tank in the basement, purified by means of a Hilco activated clay reclaimer, stored in a clean oil tank, and then returned to the engine. The lubricant is always in good condition, and there is no sign of sludge formation in the engines. A motor-driven rotary pump transfers the oil from tank to engine.

Equal care is taken to guard against formation of scale in the cylinder jackets and water connections. The design includes a closed cooling system using only soft rain water treated with chemicals. Water circulates through the engines and the coils of the Marley atmospheric-type cooling tower by a pair of motor-driven centrifugal pumps. During the winter, the hot jacket water is directed through a set of unit heaters to heat the building. A second pair of motor-driven centrifugal pumps take raw water from the cooling tower sump and pump it over the tower. A float valve in this spray basin admits city water into the raw water supply whenever makeup is needed. Both the soft and raw water systems can be supplied adequately by one pump each, and the second pair serve as standbys.

This new electric plant, located conveniently by the town water works, is a focus of civic pride to the community

Air for each engine is cleaned by a Vortox oil bath filter outside the plant and enters through a line under the floor, then up to the intake header. Exhaust gases go down through the floor and out through an insulated pipe to the Maxim silencers outside the building.

A 24-MONTH SUMMARY OF OPERATING EXPENSES

Fuel	$7,268.90
Lubricating Oil	523.45
Labor	4,180.56
Supplies	86.88
Interest	290.88
Machinery Depreciation	4,159.20
Building Depreciation	1,701.12
Total	$18,210.99
Kilowatt-hours produced	1,838,800
Cost per kwh.	$0.0099

To permit intelligent operation of the equipment, the operators make careful record of plant production, fuel and lube consumption, and inspection routine. The first essential, of course, is accurate metering of the fuel. Fuel is pumped up from the railroad a quarter mile from the plant by a motor-driven gear pump through a meter to the 10,000 gallon storage tanks. Two motor-driven rotary pumps (one a standby) send oil through meters to the elevated day tank for each engine. The day tanks are filled and the meters read every shift. To remove impurities from the fuel, there is a screen before each meter and a filter on each engine. All the tanks are equipped with level-meters. Fuel injection is regulated to meet the load by relay-type governors on each diesel. The eight-panel General Electric switchboard holds eight totalizing watt-hour meters so that production and distribution of electricity can be checked closely. In addition, there are a recording watt meter, a clock showing hours of operation for each engine, a synchroscope, and two voltage regulators.

The plant contains a complete Viking alarm system with an Edwards annunciator showing the operator where to look for trouble. The alarm sounds in the event of a drop in raw water, soft water, or lubricating oil pressures, or if the day tank level goes outside prescribed bounds. A multi-point Alnor exhaust pyrometer permits the operator to learn the exhaust temperature at each of the ten cylinders in the plant. Engines are started by compressed air supplied by two V-type Worthington compressors, one driven by motor, the other by gasoline engine.

Municipal plants are frequently the focus of civic pride, and this one gives ample evidence of the interest of citizens and operators. The brick and stone building is of

attractive design. The grounds are well kept and the interior is spotlessly clean. Large windows light the building by day and mercury-vapor lamps by night. Odessa is a residential community, and its hopes for the future rest on serving the average citizen. Already there has been a marked increase in the use of electric stoves and refrigerators, and the town is campaigning for a much wider distribution of electric appliances. Increased load will bring greater efficiency, lower power rates, and later, lower taxes.

It would have been possible to amortize the investment over a long period of years and show immediate rate reductions or a sizable cash profit. It was preferred, however, to pay off the indebtedness as quickly as possible and clear the books for sweeping benefits in future years. To accomplish this, the town retained the established utility rates ranging from 9 cents per kwh down to 3 cents per kwh. Commercial rates begin at 9 cents and step down to 1.5 cents for consumption over 1,590 kwh. The Odessa citizen may pay the same light bill as he did in the days before municipal ownership, but there is one vast difference: each dollar he pays for electric service today is an investment in rate reduction and in tax reductions in the years to come.

The plant is operated under the direct supervision of J. E. George, Superintendent of Utilities. He in turn is responsible to the Town Council headed by Thomas Dyer, Mayor, who laid the plans for the acquisition of this municipal electric plant.

• • • —

Small Town Water Works Feature Water Sphere

Granton, Wisc., by Careful Engineering, Builds Modern Plant for 45 Customers

ONE of the few new waterworks installations in the Wisconsin area, and by far one of the most interesting, is the project located at Granton. This progressive little Midwestern village, with a population of only 350 and with 45 water customers, has built for itself a civic improvement that has attracted considerable attention throughout the entire Wisconsin area.

All-Welded Tank

The most commanding feature of this plant is the 50,000-gallon, all-welded elevated Chicago Bridge and Iron Co. Watersphere. This storage tank, of a design usually considered suitable only for the larger municipalities, is 55 feet in height to the bottom of the sphere. It is centrally located within the village and at a distance of about 3,500 feet from the well. Deep-well electrically driven turbine pumps with a 50-gallon-per-minute capacity furnish water to this reservoir. The operation of the pumping station is entirely automatic.

There are approximately 2½ miles of cast-iron water mains in the distribution system, all of 6-inch diameter. Fifteen fire hydrants are included to furnish fire protection. Insurance rating already has been reduced because of this water works installation. The daily water consumption averages 15,000 gallons with a maximum consumption rate of 5,000 gallons per hour.

The new 50,000-gallon Watersphere at Granton, Wisconsin, is 55 feet from ground elevation to the bottom of the tank

Design and Supervision

The design and supervision of construction on this project was by General Engineering Company, consulting engineers at Portage, Wisc. The work was performed as a WPA project. The village is repaying the cost of construction entirely out of earnings from the sale of water. The project is financed by mortgage revenue bonds payable out of earnings over a 23-year period.

"Get Over the Gimmes"

We will not get maximum production unless, first, we fully realize our awful peril; and, second, get over the "gimmes" of recent years.

Gimme shorter hours, gimme higher wages, gimme bigger profits, gimme more overtime, gimme less work, gimme more pensions, gimme greater crop benefits, gimme more appropriations and patronage, gimme plants for my Congressional district, gimme fees and dues to work for Uncle Sam, gimme Ham 'n Eggs, gimme share-the-wealth, gimme $30 every Thursday.

France had the gimmes, too—had them till the Germans were close to Paris. Then everybody went frantically to work—too late.

France has no gimmes today—except gimme food for my baby, gimme a place to lay my head, gimme death.

—From an editorial in the *New York World-Telegram*.

Central Accounting in Jacksonville, Fla.

Covering Collections, Purchasing and Records

THE auditing department of the City of Jacksonville is charged with the duty of keeping all municipal records, and checking and verifying all accounts.

These record-keeping duties consist, in detail, of issuing vouchers for the payment of all bills owed by the city, all salaries of municipal employees, all pensions, etc. This department also issues all customers' bills to users of electricity and water, records the payment of those bills, reads all light and water meters in the city, and keeps records of cut-ons and cut-outs of water and electric service.

Further duties of the department consist of: keeping all ledger accounts for the municipal docks, terminals, and the municipal radio station, as well as the general ledger of the entire city; keeping all special accounts, such as paving lien accounts, inter-departmental accounts, and other miscellaneous items.

Since a major part of the auditing department's duties are the keeping of records for other municipal departments, such as the electric light department, water department, etc., the cost of operating the auditing department is prorated among, and included in, the operating costs of those individual departments.

A picture of Jacksonville's remarkable growth in recent years, as reflected in the increased business being done by the city's utilities, is furnished by a brief résumé of the work now being done by the electric auditing division of this department.

Since 1934, the number of electric accounts kept by this department has increased 53 per cent; from 32,000 in 1934, to 48,000 in 1940, to 52,000 at the close of 1941. All bill forms are printed on multigraph. The electric bills are made in sets of five copies for each bill by National accounting machines. It is expected that an analysis machine will be installed to list classes of consumption and revenues from each class.

The number of electric range wiring accounts has increased 233 per cent, from 660 in 1934, to 2,200 in 1940. Applications for electric service have increased 25 per cent; applications for electric cut-out services increased 10.2 per cent, from 16,324 in 1934 to 18,000 in 1940. Jacksonville's substantial, consistent growth, however, is indicated by the fact that in 1940 there were 19.4 per cent more applications for electric service, than for electric cut-outs. In 1934, there was a percentage of only 6.8 per cent of applications over cut-outs. Electric and water customers are listed alphabetically in separate Kardex visible-card files with color signals to indicate cut-off and balance due. An applicant for service receives his answer in about three minutes. The electric meter books are stored in Safe Cabinets.

Electric range repair accounts have increased approximately 150 per cent since 1934. The city does repairs on ranges and water heaters for the cost of the materials with no charge for labor and shares the cost of wiring, assuming all cost over $20 on a range and $25 on a range with heater.

The composite picture of this increase is shown by the fact that the total number of accounts handled by the electric auditing department at the present time increased by more than 22,000 over the 1934 total.

The water auditing department also has experienced a record-breaking increase in its business, with the number of accounts now totaling 35,000. Owner's name and address are printed on the bills by a No. 3400 Addressograph machine, and the amounts are computed and printed on the bills by Burroughs bookkeeping machines.

Assessing

According to the best information now available, Jacksonville is the only city in the United States of 25,000 population or over which levies no tax of any kind, upon a homestead of $5,000 valuation or less. In 1940 approximately 15,000 applications for homestead exemption were received (by law the applications must be made in person by the homestead owner), and property valued at $16,678,400 on the "50 per cent of fair market value" basis was declared exempt.

The total valuation of taxable property within the city limits, in 1940, and on the "50 per cent" basis, was $56,983,860. Personal property was valued at $9,482,020, giving a total valuation of taxable and untaxable property, of $84,144,280.

The city tax assessor's duties require him to prepare first an assessment roll of all taxable properties, which is turned over to the City Council. The Council then determines the amount of money needed to operate the city during the year and fixes the millage rate. The roll is then returned to the assessor, who determines the individual assessments that must be made against each piece of property, according to the council-determined millage, and makes the final roll on Elliott Fisher machines and sends it to the City Treasurer for collection.

City's Receiving Teller

The Jacksonville City Treasurer's office acts as the city's "receiving teller" for the payment of all accounts due the city—the monthly bills issued for consumption of water and electricity, and tax payments. According to Jacksonville's city charter, no department of the city can issue a receipt for the payment of any money due the city, except the Treasurer's office.

An idea of the immense volume of routine business handled by this office can be gained from the fact that it receipts and records the payment of approximately 700,000 water and electric bills per year. As many as 7,000 persons have been waited on, by the office's receiving tellers, in one day. Transfers of earnings from the city utilities to the general fund approximates $17,000,000 yearly. All city mail is handled by a new Pitney-Bowes postage meter.

The City Treasurer also sends out approximately 18,000 tax statements each year, notifying property owners of taxes due, and accepts payments and issues receipts on those statements. The tax bills are made by typewriter in sets of four copies each, one copy to be sent out next year as that year's tax statement, being filed alphabetically by owner's name.

For the last ten years the budget has been controlled in accordance with the plan of the National Committee on Municipal Accounting of the Municipal Finance Officers Association. Burroughs budgetary accounting machines keep the records showing original appropriations, revised appropriations, expenditures for the month, and the balance or overdraft. In November, next year's budget is mimeographed for office use, and printed copies are made from it.

Purchasing Procedure

The purchasing system is simple and closely controlled. A departmental requisition comes first to the auditor's office which sends it to the purchasing department for pricing. It then returns to the auditor's office for approval after which the purchasing department issues an order to the vendor, a copy being kept in the auditor's file for the Commission's approval. There are five copies of the purchase order, the first copy gong to the merchant. The merchant takes duplicate receipts for delivery and returns invoice, original receipt, and his copy of the purchase order to the Purchasing Agent who checks these documents and sends them to the auditor for payment.

The auditor checks the requisitions for the Commission's approval as well as the delivered ticket and signature of the recipient. All extensions and footings are verified, and the total price is checked with the purchase order price. This figure is put in accounts payable and charged against the department which ordered the equipment or material. This work is performed by Burroughs bookkeeping machines which charge the individual ledger card and make a journal sheet. A monthly recapitulation of these ledger charges is made, and proper payments are made to the storeroom. The merchant looks for one payment for his month's invoices.

The storekeeper keeps a record of stock, sending the record to the purchasing department where an inventory is kept. Once a year a comparison is made of these two inventories and a count is made of the stock actually on hand.

John E. Pace is City Auditor, Brooke G. White, Jr., Assistant City Auditor. Gus M. Gordon is Purchasing Agent.

Bad Luck or Blundering in Municipal Finance

THAT not more than 20 per cent of the 200 largest cities in the United States have really burdensome debts, and not more than 10 per cent have debt obligations threatening the margins of their fiscal capacity, are among the findings in a study of "The Financial Problems of Cities," by Frederick L. Bird, of Dun & Bradstreet, Inc., as presented at the 1941 annual meeting of the American Economic Association.

Of these 200 cities, Dr. Bird finds 50 per cent have over-all net debts of less than 6.5 per cent of the estimated full value of their taxable property.

Commenting on this study, the Tax Institute of the University of Pennsylvania, in the February 24 issue of *Taxes for Democracy*, says:

> The war has brought abruptly, and sometimes painfully, to the forefront the realization that strenuous fiscal times confront the municipalities. Unhappy days probably lie ahead, both for the distressed city guilty of blundering and the distressed city which has run afoul of economic bad luck.
>
> The situation is not, however, hopeless. Contrary to what appears to have been a popular notion in this country, not all cities have been penny-wise and pound-foolish and not all of them have been unlucky in the matter of economic resources. The vast majority are in relatively sound financial condition. Accustomed to self-discipline, they should experience little difficulty in taking the war in stride. They have never been used to financial blundering, and are not likely to start indulging in such tactics now. Assuming even a desire to, no city can afford to keep less than a sharp eye on every dollar of income and expenditure.

In this connection, the words of Dr. Bird carry their own solemn meaning:

> This margin for financial blundering, however, has been narrowing perceptibly in recent years and now, under the strain of national defense requirements, is approaching the vanishing point. National debt and national taxes will close in with their superior demands until it will no longer be a relatively easy matter for municipalities to secure their desired share of the national income, if, indeed, they can do so at all.

Dr. Bird, who holds that "management is fully as responsible for the existence of serious municipal fiscal problems as are economic factors," adds in his text that "a prompt solution of the management problem is essential to the continuance of our system of local self-government." The term, "fiscal management," is used by him to apply not only to the local processes of accounting, budgeting, borrowing and formulation of general fiscal policies, but to the fiscal regulations and restrictions in state constitutions and statutes, to state-local tax systems, and to provisions for state supervision of local fiscal affairs.

A County Park System Matures

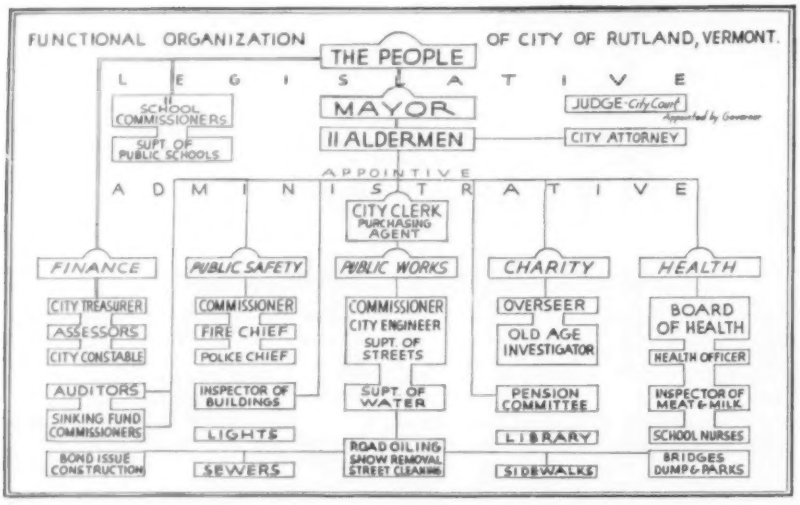
"WITHIN the brief span of twenty years, Union County has developed a park system that has converted wastelands into community assets worth far more than the original investment. It has secured a better life—more adventuresome and health promoting—for its citizens. It has served as an attraction to bring better employment opportunities for its wage earners. It has made more beautiful the municipalities wherein parks were located, and encouraged in them the sinking of home roots by responsible families of the kind who typify and form the America we dream of building."

The story of this achievement is told in an article by Caxton Brown, member of the Union County Park Commission, published in *Recreation* for December 1941. Reprints are obtainable from the Commission's office in Elizabeth, N. J.

Local Government Is News

Town Reporting in New England—"V" for Valuable Ideas

By Phillips Bradley



ANNUAL report time in New England has rolled 'round again. Despite roads in the snowbound north country or spring-thawed highways southwards, most town meetings come traditionally in March. In Vermont a "warning," in Massachusetts a "warrant" calls the citizens together to elect officers, vote town funds, and transact other business for the next year. What they will do will flow largely out of last year's record. How do these New England towns record their business? What ideas are there in these small town annual reports which we can apply generally?

For a number of years contests have been conducted in Massachusetts and Vermont on how to make town reports more readable. The Selectmen's Association in Massachusetts and the State Chamber of Commerce in Vermont have sought to stimulate better reporting. They have provided a counseling service on the preparation of adequate reports and, sometimes, prizes for outstanding improvements or innovations. The 1941 reports from towns in these states offer some useful and interesting examples of making government understandable and dynamic.

The War and Local Service

The Vermont State Chamber of Commerce last year put on a drive to have the towns and cities of the state bring the impact of the war more vividly home to the people. Tucked away in the valleys of the Green Mountains, most of Vermont's population lives a long way from the immediacy of air attack. The Chamber, therefore, suggested that a vote be included in the 1942 town meeting "warnings" giving special attention to the citizen's share in the war effort.

This action took several forms. One was a listing of those who entered the armed services, often accompanied by a special resolution by the town meeting or its officers of appreciation and recognition. Another was a pledge of service by those who stayed on the home front. Windsor, for instance, resolved that "We pledge every man, woman, and child to do his or her full duty and to work to the utmost limit of capacity, so that 'Government of the People, by the People, and for the People' shall not perish from our town of Windsor." Over 90 towns in Vermont have passed similar resolutions, with many still to be heard from.

This sort of general resolve is not all. Far away though they are, many towns in Vermont and in other New England states have organized active civilian defense resources. The fact is attested in many ways. A number of 1942 town reports from New England list air raid and other protective service officials in the directory of town officers. Many also print air raid instructions — thus carrying the necessary information into every home in the community. A few go into further detail and portray the town's over-all organization for civilian defense. Charts, for instance, like that in the Springfield, Vt., report, are becoming an increasingly regular feature of local government reporting to the people.

The effects of the war on local government are evident in other sections of 1942 town reports. Many of even the smallest communities in Vermont and other states have begun necessary training courses for those about to enter the armed sources or to enlist in the armies of production. This aspect of war service is reflected in the school reports. Courses in aviation, mechanics, shop practice, etc., had reached back into the rural hinterland as early as 1941. Sometimes locally initiated and financed, sometimes supported by state or federal grants, they give clear proof that service in the war effort is a main purpose of the townsman as of the city dweller. Other departments, such as fire and police, also report special civilian defense activities.

As the war effort expands, towns and cities, especially in the seaboard states, will go further than the annual report in keeping their citizens posted on local needs and current progress. The National Office of Civilian Defense provides, it is true, all essential information on the organization of the various protective services. Their local train-

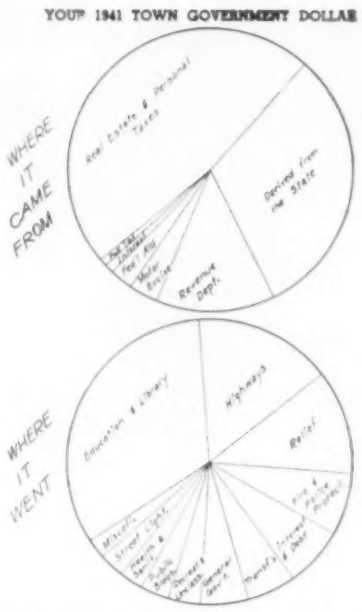
ing and activity programs will, however, have to be developed and administered by the Town (or City) Hall. Already a number of smaller, as well as larger, communities are presenting ingenious and intriguing progress reports and organization programs. There is another way in which alert attention to well-planned reporting by local officers will result in more effective —and widespread—citizen cooperation in the defense effort.

Information Versus—or Via—Statistics?

Why do so many citizens toss annual town and city reports into the waste-basket? One reason is that dozens of pages of payments mean little or nothing—except to the recipients. Most state legislatures, and New England's are no exception, have imposed certain requirements on local governments as to publishing fiscal statistics, presumably in the interest of official honesty and perhaps in the hope of public pressure for economy. These prescriptions rarely go beyond the requirement of detailed financial accounts for separate budget items. Many towns, and cities too, have fallen into the habit of publishing every outpayment in over-elaborated complexity. No doubt many citizens got the same pleasure out of reading the names of those receiving aid or being paid for road labor as they do from listening in on the traditional party line. These statistics have little to do with accurate and comprehensive fiscal reporting. And they often take up half or more of the typical New England town report. They are a costly but hardly informative way of making the citizen aware of how much his government is costing him.

The Massachusetts Selectmen's Association has, for the past half dozen years, been conducting an annual competition for town reports in that state. One element which has been increasingly emphasized in judging these reports is an interpretive rather than a repetitive financial accounting to the people. This has been achieved in several notable instances. A number of Massachusetts towns have abandoned the practice of printing dozens of pages itemizing individual vouchers. Instead, they are beginning to present consolidated accounts. Such reports give the citizen a clearer idea of where and for what his money has gone and how costs vary from year to year for different local services. Incidentally, the town's printing bill can be measurably cut.

This is not all. A good many Massachusetts towns have, under the impetus of the competition, begun to develop new statistical devices for turning the dry stuff of accounts into the living story of local government. Pie and bar charts, comparative records over five or ten years, the tax dollar split in income and outgo, provide the community with revealing financial insights instead of dull pages of names and figures. And these charts and similar statistical devices have been applied to other aspects of local government—to make health, highways, education, or fire fighting come alive.



Quick picture of revenues and expenditures in Walpole, Mass.

Are Comparisons Insidious?

What about these competitions in making municipal reports more readable? Do they result in better reporting, or merely in jealousy and bad feeling on the part of the losers.

If Vermont and Massachusetts experience counts for anything, the benefits predominate. In Vermont, the effort to improve town reporting stemmed from a Chamber of Commerce. In Massachusetts, the towns' chief officers, the Selectmen, themselves initiated the competition. In both cases, town officers responded widely—and continuously. There has been rivalry to make a winning or an honorable mention rating.

Looking back on the first five years' record, substantial accomplishment is recorded in Massachusetts. The rating of reports is officially sponsored and carried out

(Continued on page 95)

This magazine would like to know about other state-wide or regional competitions in comparative municipal reporting. If you know of contests like those in Vermont and Massachusetts, write The Editor, THE AMERICAN CITY, 470 Fourth Avenue, New York City.

Views before and after North Boulevard Homes were built in Tampa, Fla.

Where Shall They Live?

The Accommodation of Minority Groups in Urban Areas

By Alonzo G. Moron
Housing Manager, Atlanta, Ga.

PRELIMINARY figures from the 1940 census show that during the last decade the proportion of the non-white population residing in urban areas increased from 43.2 per cent in 1930 to 47.9 per cent in 1940. Sixty-one cities of over 100,000 inhabitants showed an increase in the non-white population. In 14 cities of this class there was a decrease, and only 4 showed practically no change. In the remaining 13 cities of this size, the non-white population was too small to be statistically significant. This means, then, that 79 cities of over 100,000 inhabitants have a sizable non-white population and that the proportion of non-whites is growing in 61 cities. Since the bulk of this non-white population is Negro, and most of the factors which accelerated the urban migration of the Negro during the last World War are reappearing during the current emergency, we may reasonably expect that the proportion of the non-white population to our total urban population will continue to grow during this decade.

Population Adjustment After First World War

The first rush of Negroes to urban areas in the World War years brought to these communities problems of housing, of school and recreational facilities and, later, other problems of health, public welfare administration, and government. In some northern cities, groups of Negroes had lived peacefully side by side with their white neighbors until the call for more workers multiplied the number of non-whites in their population. These cities soon became race-conscious; and restrictive covenants, gerrymandering, excessive tax assessments, and even dynamiting, were used to keep the newcomers in restricted areas. Gradually, through the late twenties and the thirties, some adjustments were made. In some cities the adjustment meant the enlarging of the old Negro district and the creation of a city within a city with separate churches, clinics, hospitals, theaters, commercial establishments, and, in some cases, even separate schools and police and fire stations. In other cities the adjustment meant the settlement of Negro families in several scattered areas of high Negro concentration either in areas previously occupied by Negroes or in new land not previously used for settlement. In a few cities—and these cities were the ones showing the smallest increase in the non-white population—there was a continuation of the old pattern of mixed residence in all areas of the city.

Effects of Negro Urban Influx Settlement

With the exception of the last pattern, the characteristics of the Negro sections, large and small, are similar to the characteristics of other sections of the city where families of low income live—except that, in the case of Negro settlement, local prejudice tends to keep Negro families of all incomes confined to well-established Negro areas. Occasionally, in northern cities, it is possible for a single Negro family to move out of its neighborhood and occupy a house in a white section. When that hap-

Schatts Alley, Washington, D. C., with the Senate Office Building in the background

Dwellings like these characterize many areas in Chicago, Ill.

pens, however, it is usually the signal for the beginning of hostilities. If the Negro family successfully defends its right to stay in its new home, the white families in the neighborhood soon relinquish their homes to other Negro families and the nucleus of a new Negro section is formed. So regular is this sequence of events, and the needs of Negro families for more land so great, that smart real estate dealers have encouraged Negroes to move into old white neighborhoods where property values had begun to decrease. In the change of settlement the same houses automatically acquire a higher resale value or command higher rentals; while, in the case of rent property, the assessed valuation for tax purposes continues to decrease as if there had been no reversal of the income trend.

Where there has been a sufficiently large influx of Negroes in the population of a city, the following effects on city planning, administration of municipal services, and city growth and development have been the most notable:

1. The usual trend of expansion of the business section of our cities from the center towards the periphery increased the speculative value of the land surrounding the business district to the point where it was uneconomical to improve the existing structures on the land in these areas. On the other hand, the movement of the original settlers to the periphery left the residential structures adjacent to the business districts for occupancy by the newcomers,—foreign-born immigrants up to 1924, and Negroes, Mexicans,* and Chinese during and since the first World War. The rapid urbanization of our population and the lag in residential construction created a demand for these second-hand residential structures all out of proportion to their adequacy for housing. From these areas have come our highest per capita costs for crime prevention and control, for hospital and sanitoria care, and for personal and property tax arrearages. Juvenile delinquency, crime, and deaths by violence and from wasting diseases have been found more frequently in these areas than in any other section of the city.

2. Restriction of non-whites to certain areas of the city tends to create a city within a city with unequal distribution of city services like fire and police protection, street lighting, schools, garbage collection, sanitary inspection, and street maintenance. To cities already overburdened by excessive demands for special services from pressure groups, inadequate and inexperienced personnel, and the rapidly increasing number and extent of services required by the urban population, there is a great temptation to neglect that section of the population which has the lowest income, the least political power, and the smallest chance of successfully forcing the issue through the courts. Too often this temptation is irresistible; and police protection, for example, in these neighborhoods becomes little more than the right to call the police after a crime or a disturbance has already occurred. The discrimination practiced against these neighborhoods in street lighting, street maintenance, street cleaning, and locating public recreation facilities is too obvious to require comment here.

3. The existence of racial islands in our cities and their maintenance by conscious and unconscious collaboration between the city governments, the courts, and real estate dealers, puts more barriers in the way of a wise solution of the problems facing our cities as a result of their unplanned growth and from the operation of an outmoded system of general property taxation. In the present public housing program, the biggest problem faced by Columbus, Ohio, Miami, Fla., and Atlanta, Ga.—to name a few of many cities— was not where to locate the new projects, but where to relocate the Negro families that were living on the sites to be cleared. In other cities, Pittsburgh, Pa., for example, the shortage of land available for Negro housing forced the local housing authority to create new building sites at tremendous cost, by leveling off hills and filling up valleys. It has already been mentioned that the acute shortage of housing for non-white groups is keeping in the housing market structures that are unfit for human occupancy. These structures in our downtown area will have to be cleared before there can be achieved a saner relationship between land use and urban needs for residence, retail shops and commercial and industrial establishments. As long as income from these properties remains high, tax assessments low, sanitary and fire hazard inspection casual, and demand excessive, the renters of this type of property will resist all attempts to clear them out, or they will increase the selling-price beyond the limits of reason or at least to such a point that the rehabilitation program will be unable to bear the expense.

4. The increase in the non-white population and their restriction to "prison islands" in cities tends to stimulate speculation in residential property. If, in the ordinary course of events, the expected increment does not materialize for the holder of the property, or if it tends to increase at a decreasing rate, there is the extraordinary alternative of encouraging a Negro invasion and raising the rents or resale price. As houses for all sections of our population become scarcer during the present emergency, there is a danger that this practice will increase and lead eventually to greater friction between the races as well as more fore-

* The 1940 census excludes Mexicans from the "non-white" category for the first time.

University Homes, PWA Housing Project, Atlanta, Ga.

Willert Park Homes, USHA Project, Buffalo, N. Y.

closures and greater inflation of property values. Legal and extra-legal conflicts, arising from the spilling over of the urban non-white population, are now taking place in cities as far apart as Dallas, Los Angeles, Jersey City, and Detroit.

The Answer to the Problems

What is the answer to the problems raised by the increase in the non-white population of our urban centers? At a time when we are spending billions of dollars to prevent the spread of racial intolerance and racial discrimination from a different source, the answer should be obvious; but, unfortunately, life is not quite so simple, so we must look elsewhere for possible remedies. To find the answer we must rid our minds of two old and threadbare attitudes. *The first is that non-whites move into white neighborhoods in order to be near whites.* It is much more true that white neighborhoods are too often the exact opposite of Negro neighborhoods and the self-respecting Negro father sees the average white neighborhood as the only place where he can raise his family in peaceful, quiet, and clean surroundings and get protection for them from physical as well as mental hazards. *Bring the standards of city services in Negro neighborhoods up to the standards prevailing in other sections of the city and there will be a different story.* Proof of this lies in the fact that Negroes continue to move into neighborhoods that were "white" long after the whites move out.

The second unwise attitude is that a city can afford to neglect the health, welfare, and living conditions of this increasing proportion of its population. Several cities have built arterial highways and boulevards so as to avoid their passing through Negro neighborhoods. But such ostrich-like behavior will not keep the rest of the city from bearing the burdens caused by neglect of these forgotten areas. Excessive illness due to housing characterized by poor sanitation, dilapidated buildings, and overcrowding is reflected in higher taxes for all to pay the cost of more clinics, hospitals, and sanitoria. Inadequate police protection leads to more and violent crime which in turn leads to increased costs for police, courts, jails, parole and probation officers.

After we have divested ourselves of these two attitudes, we may find that there is a basic need for making more land available for Negro settlement in urban areas. We may agree also that where municipal governments give tacit approval to restrictive covenants, even though they are illegal, there exists a moral obligation to see that there is an equitable distribution of city services and to give closer scrutiny to requests for building permits, especially where conversion is contemplated, to development plans for new subdivisions, and to requests for rezoning. One of the factors contributing to the scarcity of land for residential use in Negro neighborhoods is the indiscriminate zoning and rezoning to permit the establishment of retail shops, storefront churches, warehouses, small factories, filling stations, and ice plants when there is a greater need for use of the land for residential purposes.

The last emergency brought to our urban areas large increases in the non-white population. During the present crisis, it is reasonable to expect that this increase will be accelerated. The accommodation of the earlier wave of migration was facilitated by the fact that our cities were growing and the evils of Megalopolis were not generally recognized. Today we are learning that there is an optimum size for cities and that the optimum size has been reached in many instances. It is to be hoped that in the planning and administration of our cities to accommodate future increases in the non-white population, there will be some lessons learned from past mistakes and that unscrupulous property owners will not be allowed to exploit the newcomers; for it will lead to more foreclosures, higher fire insurance rates, increased mortality and morbidity, and more poverty and dependency.

If this is allowed to happen again, it will mean a bigger bill for the taxpayers to pay, not because there was an increase in the minority group in our urban population, but because there was failure to plan for the inevitable.

—Mr. Moron, the author of the foregoing article, was formerly Commissioner of Public Welfare of the Virgin Islands, conducting a housing study that served as the basis for the home-building program there of the Federal Government. A graduate of Hampton Institute and Brown University, with an M.A. from the University of Pittsburgh, he was an Urban League Fellow and was the first member of his race to be named as social worker for the Baltimore Emergency Relief Commission.

Conservation Agreement Will Preserve Picturesque Creek Valley

By HENRY D. HARRAL
Secretary, Lower Merion Township Planning Commission
Ardmore, Pa.

CULMINATING six years of effort by The Board of Township Commissioners, the Planning Commission, and the residents of the Mill Creek Valley in the township of Lower Merion, Pa., a Conservation Agreement to protect the natural beauty of the Valley, with signatures representing over two-thirds of the area involved, was filed with the County Recorder of Deeds on February 28.

The agreement takes the form of restrictions running with the land, a matter not lightly entered into by owners of property. Such an agreement seemed the only alternative to public purchase as park lands, a procedure upsetting to residents and Township alike and almost prohibitive in cost.

The exact percentage of the total area of the Valley represented by the signatures filed is 68.76 per cent. It is hoped that other owners will join in later by supplementary agreements to bring this protected effort closer and closer to 100 per cent.

Offers 4 Main Provisions

Briefly, the agreement seeks to protect the present natural beauty of the Mill Creek Valley by providing that:

1. The land between Mill Creek and the Creek Road and land extending up to 100 feet beyond both center lines be left without development of material change from its present character.

2. Within this area, no new buildings will be erected and that walls, fences, and hedges therein will be kept low and not obstruct views of natural beauty.

3. Within this area and generally throughout the Valley, there will be no wholesale cutting of trees or construction of artificial features that may detract from the natural beauty.

4. The Township, on its part, will use its best efforts to prevent public picnicking or gatherings along the road and creek and generally to deal with the public highway system of the district in such a manner as will preserve the natural beauty of the Mill Creek Valley.

Program Started in 1935

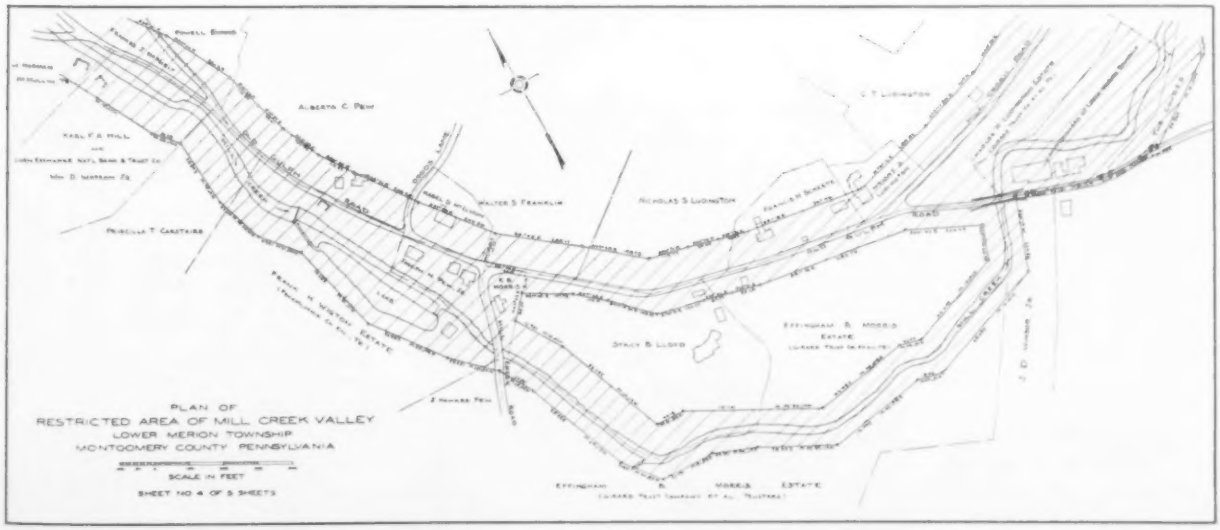
In 1935, there began a series of conferences between the Planning Commission and representatives of Mill Creek Valley owners which led to the present form of conservation effort. The form of agreement was prepared by Francis H. Scheetz, with James M. Brittain, Township Solicitor, cooperating.

The first agreement, dated April 1, 1936, was signed by many owners, but the failure to obtain signatures of several large properties caused the agreement to fail of completion. Approximately 80 per cent, however, expressed themselves in sympathy with the objectives of the agreement although they were not legally bound thereby.

Changes in ownership since 1936 encouraged the Planning Commission in 1941 to attempt this second and successful effort to complete the agreement. Lower Merion now has written into the record a real advance in community planning, but only after the use of ingeniousness in devising new methods, of hard continuous effort, and of splendid cooperation from many sources.

In its issue of March 6 the local weekly newspaper, *Ardmore Chronicle*, acclaimed the agreement in a leading editorial from which the following paragraphs are quoted:

"We on the Main Line have for some years been the unhappy witnesses



of great changes, changes which have altered, and are altering, the entire character of our beautiful suburban community. . . .

"Many of our fine old estates have been sold and subdivided for real estate development. Beautiful lawns and wooded areas, for which the Main Line has been world-famous, have been replaced by relatively small home properties. Stores and apartments have encroached upon sections previously restricted to residential sites. Beautiful thoroughfares, like Montgomery and Lancaster pikes, have been largely transformed within a very few years. There has been grave danger that our suburban atmosphere would completely succumb to urban encroachment as the city reached its long, greedy fingers westward.

"Such changes are inevitable, we suppose, and, generally speaking, we have been powerless to stop them. But in the Mill Creek Valley, we have had our first real opportunity to erect an effective barrier. Here we had the chance to say: 'This far you may go, and no farther.' It was only an opportunity that had to be seized immediately, or it would be lost forever. The story of how it was seized will always reflect glory on those who have had a part in it.

"The task was not an easy one. The obstacles at times seemed almost insurmountable. But the unselfish work and public-spirited cooperation of property owners, Township Commissioners, and members of the Planning Commission have finally achieved a magnificent result. By the terms of this agreement, the natural beauty of the Mill Creek Valley will be protected and preserved for all to enjoy, and every resident of the community will automatically share in the benefits. In fact, the benefits will accrue to those who dwell far beyond our township borders.

"We wish to pay tribute to the sincere public spiritedness of the Mill Creek property owners who, by signing this agreement, have contributed so splendidly and generously to their community. It is one of the finest examples of civic consciousness that it has ever been our pleasure to see. We only hope that the few unsigned property owners will make the gesture complete by adding their signatures. It is a Roll of Honor to which all should be proud to sign their names."

• • • —

Public Employment and the War

Distribution of Employees and Pay Rolls

COMPARED with the more than 2,000,000 members of the armed forces now engaged in defending the nation from external attack, only 340,000 state and local government employees in the United States were engaged in maintaining internal order at the end of 1940, according to a detailed functional analysis of public employment, entitled *Public Employment and the War*, issued by the Census Bureau. This study, representing the fruits of two years' effort of the State and Local Government Quarterly Employment Survey, deals with the distribution of public employees and pay rolls by governmental functions and presents information useful for home defense planning.

The paid personnel of state, city, and county governments regularly engaged in police protection and regulative activities totaled 181,000 employees. Since home defense is estimated to require 4 auxiliary policemen for every 1,000 population in the danger areas (which include about 50,000,000 of the population), a total of 200,000 men will need to be enlisted as volunteers in the auxiliary police forces. On the basis of an estimated 5 volunteers for every paid full-time fireman, more than 500,000 auxiliary firemen will be needed to aid the 120,000 paid and the 165,000 volunteer firemen.

The second largest activity of government in the United States is public education, which made up 24.5 per cent of the total personnel of all governments combined. Close to the figure for education were public-service enterprises—such as water supply and electric light and power systems—also employing 24.5 per cent of all governmental personnel. Social welfare activities, greatly expanded in the past decade, required 11 per cent, and general administrative, legislative, and judicial duties were performed by 8 per cent of all governmental employees.

In terms of personnel, the combined service of police and fire protection is the most important function of city governments, requiring the services of more than one of every four municipal employees and consuming more than one-third of city pay rolls. Public works—including highways and sanitation and waste removal—engaged more than one of every five city government workers and took an 18 per cent share of the total pay rolls.

Average earnings of city employees varied between different functions from approximately $35 per month to $250 per month in October 1940. Judicial employees in the ordinary big city received the largest earnings—$250 per month. For every function except the judicial the average earnings of employees in cities over 500,000 population exceeded the corresponding average for state employees. As cities decreased in size below 25,000 population, the average pay envelope diminished rapidly, primarily because of the increase in part-time employment in the smaller urban places.

Northeastern cities of nearly all size groups reported a larger percentage of employees and pay rolls devoted to street and highway work than was reported by cities in other regions. In the South, relatively high proportional numbers of employees and pay rolls were allocated to sanitation and sewage disposal. Hospital functions had a lower percentage of employees and pay rolls in the western region than in the remainder of the country. Charities bulked larger in the northeastern cities than elsewhere. In the West, recreation and parks were unusually important in terms of personnel.

• • • —

Housing for Wartime Efficiency

HOUSING will have a vital part in the winning of the war. Efficiency within the factory depends in no small degree on living conditions outside the factory.*

Public recognition of these facts has widened since the declaration of war. Existing housing associations are keying their activities into the nation's expanding war effort. In many other communities defense housing committees are being organized.

In an address on January 26 before the Chicago Metropolitan Housing Council, Bleeker Marquette, Executive Secretary of the Better Housing League of Cincinnati, put it thus:

"War factories cannot operate without workers, and workers will not continue to live in a community where they can't get decent housing at reasonable rents. If they do live in overcrowded and insanitary conditions in which they are uncomfortable and discontented, their efficiency will suffer. Lack of an adequate supply of housing will eventually slow down production as effectively as lack of materials."

How New York Is Meeting Its Sewage-Treatment Problem

Practical Use of Digested Gas and Resourceful Design of Settling Tanks Are Among the Features of the Bowery Bay Plant Now in Full Operation

IN reviewing challenging problems confronting the present-day engineer, the one that has faced New York City in regard to the treatment and subsequent disposal of sewage has for several years commanded attention. Aggravated by intensive real estate development and requiring the strictest kind of nuisance control, this problem is being met by steady and persistent work on the part of responsible city officials. Starting practically from scratch some ten years ago, the New York Department of Public Works has taken significant steps toward solution of these problems until at the present time approximately 40 per cent of the total sewage flow now receives treatment in accordance with modern sanitary practice.

This has resulted in the construction of plants that sanitary engineers throughout the country have watched with closest interest. Gigantic plants, each handling from 40 to 60 mgd, with ultimate capacities of three times that amount, have been the rule rather than the exception. The handling of such flows has given opportunity for the development of design features never possible in the more ordinary installations. Each plant has been considered a separate problem in itself. Methods and type of treatment have been analyzed to suit individual problems peculiar to the locality involved. However, owing to the lack of land area and the need for an extremely high degree of treatment, the activated sludge process seems to have won its place.

New Developments

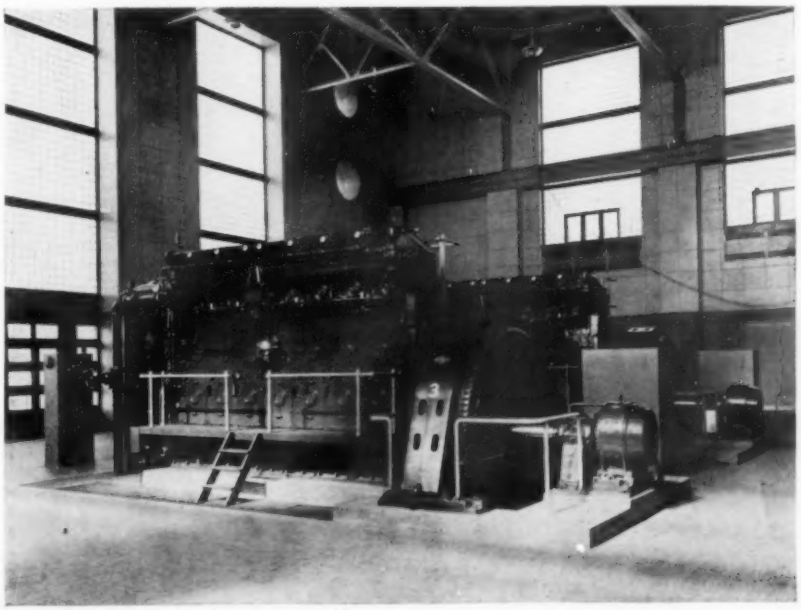
Developments in this process in the New York plants have been interesting. Engineers are expressing varied opinions of the much discussed "step aeration" process with its close and careful introduction of activated sludge. The final settling tank design also has shown ingenuity. This embodies scraping the sludge toward the effluent end of the tank and discharging it hydraulically by adjustable riser pipes. However, probably the thing that has intrigued not only engineers but laymen alike has been the practical utilization of digested gas for power.

Sewage Gas for Power

It should not be suggested that the use of sewage gas as a source of power began in the New York area. Needless to say, this is not the case. Gas engines have found use in several other plants but the New York installations are of a magnitude that dwarfs these other plants by comparison. The Bowery Bay plant alone, with its two 800-hp Rathbun-Jones engines, developing generating capacity of 1,120 kw, compares favorably in power generation alone with many highly successful small municipal electric utilities.

Engineers with the department subjected the uses of digested gas to careful analysis covering not only the mechanical design possibilities but also the economics as well. Early plans called for gas engines to be connected directly to the pumps and other equipment; the procedure in the more recent plants is to generate the power into electricity, thereby making it available to more types of equipment. The new Bowery Bay plant, recently placed into full operation, is an illustration of this latter type.

The gas evolves from the digestion of both raw and thickened activated sludge. At this plant, the digestion takes place in four tanks equipped with floating gasometer covers for gas storage. Digestion is



Two Rathbun-Jones engines, each directly connected to a 560-kw electric machinery generator, supply power using sewage gas for fuel. Note the absence of the customary fly-wheel. The generator rotor has been designed to supplant it

hastened by heating coils within the tanks. The gas storing capacity of each tank is 51,500 cubic feet. After digestion, the sludge in its inert form is pumped to storage tanks and subsequently is used either as a soil conditioner on city parks or is barged out to sea for disposal.

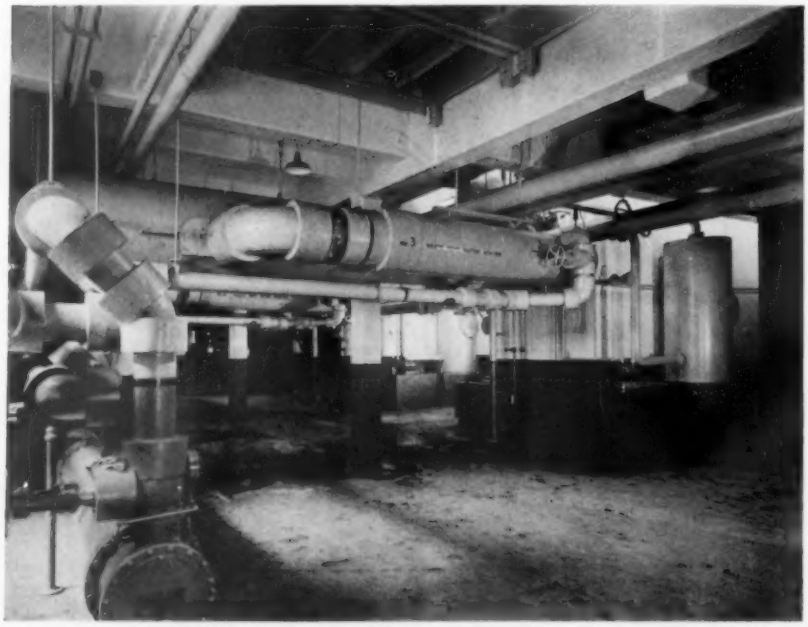
The engines at the Bowery Bay plant are distinctive because of their compactness. Their smaller size makes it possible to realize important economies in floor space, less expensive engine foundations, and generally more satisfactory working conditions. This compactness has been achieved while still retaining an engine speed of 300 rpm with 800-hp capacity. There are four-cycle heavy-duty Rathbun-Jones engines with vertical oil-cooled pistons having a piston speed of 1,100 ft. per min. maximum. Each engine is directly connected to a 560-kw Electric Machinery generator. It is interesting to note that there is no separate fly-wheel of the conventional type. The generator rotor has been designed to provide all the fly-wheel effect necessary. This construction saves about 2½ feet in the over-all length of the unit. At present there are two of these engines with provision for an additional number to be installed as the plant increases in size.

Engine cooling has been carefully engineered. Jacket water circulates through a waste heat boiler to heat the building. It also circulates through a heat exchanger which is part of the heating coil system that maintains optimum temperatures in the digestion chamber. In this way, full utilization of the heat of the engine is realized, giving values comparable to boilers from waste gas burners used in many small plants. The temperature of the jacket water is carefully controlled to prevent excessive temperature drop. The heat exchangers are designed to maintain an exhaust gas temperature above the dew point, thus preventing corrosion in the heat exchanger and exhaust lines.

The Bowery Bay plant has a designed capacity of 40 mgd with facilities for enlarging it to three times that figure

Specifications at full load called for a value of not more than 10,000 btu's per hph. The field test shows that this has been bettered, with actual results running to only 9,100 operating on sludge gas with a value of about 600 btu's. It is anticipated that better than three-quarters of the power will be supplied from the sludge gas. The generated electric drives one 21- and one 42-million-gallon-per-day DeLaval pumps and also two 10,000 cfm blowers in addition to auxiliaries with load amounting to 200 hp.

The design of the plant contemplates supplying air for the engines from the same air filters that supply the activation process. These Electromatic air filters are interesting pieces of equipment. Air passes through electrically charged screens ionizing the dust and attracting the particles to a second screen on an endless belt. This in turn carries away dust so attracted and disposes of it in an oil bath. Exceptionally high dust removal efficiencies have been demonstrated. At the present time air for the engines is supplied through the conventional air intake filters.



PHOTOS FROM NEW YORK DEPARTMENT OF PUBLIC WORKS

A view of the piping arrangement in connection with the engines. Full utilization has been made of the heat from the engine jacket water

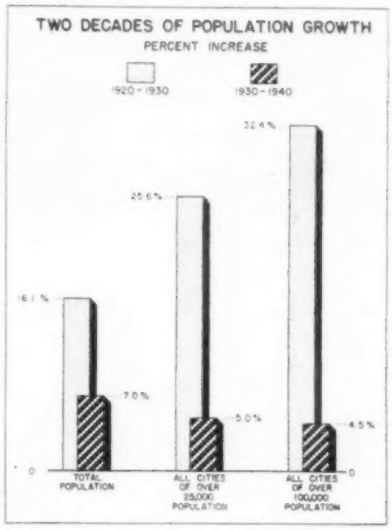
Gas Engine Advantages

Because the accounting methods within the city government do not adapt themselves well to separating the costs of the engine operation, it is difficult to show financially how successful these engines are. As previously stated, however, preliminary investigations have indicated that they were economically justified. It is sufficient to say that department officials are convinced of

(*Continued on page 95*)

New Census Figures on Urban and Rural Population

IN direct contrast with the 27.3 per cent increase in urban population and the 3.7 decrease in farm population of the United States between 1920 and 1930, are the final figures of the 1940 Census released February 27, 1942, by the Department of Commerce, which show that the proportional distribution of urban and rural population has not changed to any great extent during the last decade. The total rural increase was 6.4 per cent, and the urban increase, 7.9 per cent, of which almost one-sixth is attributable to the reclassification of places from rural to urban. The urban increase almost exactly reflects the rate of increase in the population of the nation as a whole.



The statistics of urban growth in various geographic divisions of the country show a similar pattern: urban growth was greatest in the least urbanized divisions, while the rate of urban growth was relatively slow in divisions which were already highly urbanized. The exception was the Pacific Coast region, where more than two-thirds of the population lived in cities in 1930 and where an increase of 14.8 per cent occurred in the 1930-40 decade.

Urban growth was most rapid in the South, and farm growth the most rapid in the West. The 1940 Census figures show that the rural-nonfarm population increased almost twice as fast as the urban population between 1930 and 1940, and that the rural-farm population remained practically stationary during that period. While the rural-farm population represents about 99 per cent of the total farm population, the urban-farm population, that is, those living on farms within the limits of urban places, is of great importance in a number of states—especially the New England States—where the areas outside the central cities increased much more rapidly than the central cities. The growth of the rural-nonfarm population reflects in part the growth of metropolitan centers, because the rural areas form about one-third of each metropolitan district outside the central city. However, included in these figures are inhabitants of small manufacturing villages, persons living in mining settlements, and in small trade centers.

Although the number of farms, as shown by the Census of Agriculture, decreased by 3.1 per cent between 1930 and 1940, the rural-farm population changed very little during that period. There were appreciable increases in the rural-farm population in a number of states, but these increases were offset by rather general and widely distributed decreases, these being most marked in the Dust-Bowl States where the total population registered a decrease.

Fewer Farmers Needed

Regarding the farm population, the report of the Department of Commerce states: "Since this population has a relatively high reproduction rate, the virtual cessation of farm population growth during the decade is attributable mainly to out-migration from these areas. This in turn results from the lack of adequate economic opportunity for increasing numbers of people on the farms. Mechanization of farm work is continuing, and other farm practices are becoming more efficient, so that smaller and smaller numbers of workers on our farmlands are able to produce all the products that can be marketed. A contributing factor is the decline during recent years in the exportation of certain farm products."

To Bring Our Aliens and Native Minorities into the Fold of Democracy

To the Editor of THE AMERICAN CITY:

I have read with a good deal of interest, in your February issue, the stimulating article "Keeping our Heads on the Enemy Alien Problem" by James Rowe, Jr., Assistant to the Attorney General of the United States. The clear definition of the program that the government is undertaking to protect the nation against enemy sabotage is well-made; but I was glad to note that Mr. Rowe pointed out we can most strongly defend democracy by practicing it. After certain sound measures are taken for our own protection, we can gain nothing by discriminating against the million and a half enemy aliens within our democracy. It is well at times like this to remember that a majority of us have our roots in families that at some period, be it one or four generations ago, were aliens.

During this war period, all citizens back of the front lines should contribute their greatest effort to national unity by practical applications of the tenets of democracy—equal opportunity, personal liberty, and a society that is class-less, casteless, and without barrier to individual success through personal merit. It will not be enough to extend the application of democratic principles to aliens. We must set about the work of bringing all of our native minorities into the fold of democracy. Perhaps without entire realization of our actions, we have consistently subordinated a minority which forms one tenth of our population—the Negroes. A democracy, depending upon internal unity and cooperation for its best operation, *must* see to it that no minority is allowed to feel excluded arbitrarily from the national life.

During the depression years of unemployment, Negroes found themselves more and more restricted both in quantity and quality of employment opportunities. Much of the work formerly reserved for Negroes was carried on by white workers and several new expanding industries excluded Negroes entirely or hired them only for limited kinds of unskilled labor. It is fortunate, from the viewpoint of race relations, that the nation is in need of every available worker for its production effort to win the war. Yet it is not enough to ask our minorities to work only under the stress of national defense. We must lay the basis for the unity we will need in the post-war world as well as during the war periods. No better plan could be carried on than setting our own house in order by removing all discriminatory practices against aliens and national minorities.

FLOYD W. REEVES,
Director, American Youth Commission,
Washington, D. C.

SPREADEROLLER Applies Wearing Course to Runways, Roads and Streets

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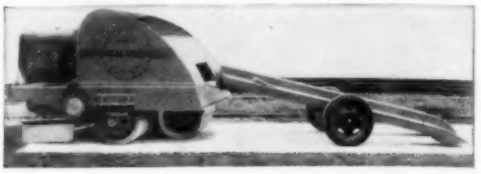

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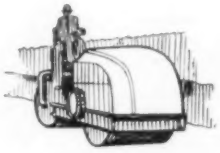
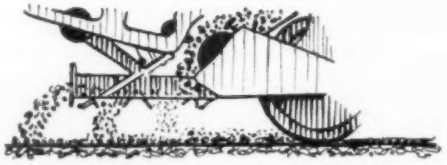


and this at the same time

depositing seal coat in 3 layers:



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Even Law Department Reports May Be Readable

By WILLIAM H. ALLEN
Director, Institute for Public Service, New York City

IF official reporting had "best seller" rating or "must" listing, *Chicago's Law Year 1941* would be competing for first place. It is by Barnet Hodes, Corporation Counsel. It begins "The War and the Law Department." It ends 100 pages later with "Municipal Problems and the War." In between are human interest headlines, stories, comparisons, explanations, and cartoon guides like those shown below.

In spirit and presentation as well as typography it is a slow-motion picture of a municipal service which too rarely has reflected its opportunity and responsibility for stewardship, salesmanship, and statesmanship. It warns even high-spot reporters among city managers, school superintendents, and welfare workers to look to their laurels. It can help textbook and classroom teachers of government, civics, law, journalism, and composition.

Center heads like these on the certain "impact" of the war on law municipal departments give readers a new feeling for the public's law service: "Department Sees New Tasks . . . Expanded Activities Expected . . . Municipal Autonomy . . . War Program Participation . . . Personnel Problems . . . Possible Future Liabilities . . . Civil Liberties . . . Governing (of) Profiteering . . . Rent Control . . . Housing Problems."

The official year's "highlights" are summarized in a second chapter of 26 pages, with cartoon sign-boards and center heads which help the stockholder reader see the significance to himself of the year's "litigation, legal advice, ordinance enforcement, legislation, appearances before administrative bodies, and collections."

Other law departments have been defending their cities and states from wrongs attacked by Mr. Hodes and the 103 associate lawyers, and this "loyal assistance" his letter of transmittal acknowledges with thanks. Doubtless other law chiefs have felt the privilege, responsibility, and patriotism which his report expresses. This report is a high spot because it reveals aims, accomplishments, and defeats to laymen.

One uncommon "first aid" to readers is the story of opinions rendered by the law department. It is welcome "adult education." Sample "set backs as well as successes" are briefly described.

Such reporting sets up future liabilities as well as current assets. Readers will be exacting a high order of future service.

Warning as to wars "strong impact" is more effective because of the report's three-year statistical comparisons of law work and results, including 840 cases before administrative bodies. The last pages have center heads like these: "Cities on 'Firing Line' . . . More Power Needed . . . Officials Must Act . . . New Principles Envisioned . . . Housing Problem to the Fore . . . Legal Questions on Defense. . . ." The finale is this:

"Let us, then, as municipal lawyers, prepare our minds for new concepts. Up to now we have not been able to unshackle our cities from legal limitations that cripple them. But this war may yet show a new way, and my plea is that we condition ourselves to a new way. For progress may come from war, too."

Numerous personnel problems will be created as municipal employees go from Civil Service to Selective Service.

Who pays for damages and injuries in blackouts? This is a question the department may be called upon to answer.

Special vigilance must be maintained to prevent and punish profiteering. In this effort the department will play a part.

A saving clause—suggested by the Law Department—in the Illinois cigarette sales tax preserves the city's right to regulate the wholesale or retail sale of cigarettes.

The department issued an opinion important to civil liberties on the distribution of handbills relating to political, social or economic matters.

The Law Department acts to further better housing in Chicago.

In two important cases, the city won the right to (1) rid the city of racketeers engaged in a business involving the public welfare, and (2) police new-process cleaners to protect employees and the public from toxic fumes.

Short-weight cases involving scales showed a marked decrease.

The Law Department cooperates with the police and fire department to solve arson cases.

Photographs taken by the department enabled jurors to "see for themselves" in accident cases, helped keep damage awards low.

Erection of railroad underpasses will help streamline Chicago transportation—an important factor in the victory program.

Drawing up agreements for the construction of hangars and a $1,200,000 terminal was but one of the many departmental activities in connection with the expansion of the Municipal Airport.

Graphs and Paragraphs from "Chicago's Law Year 1941"

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Austin-Western

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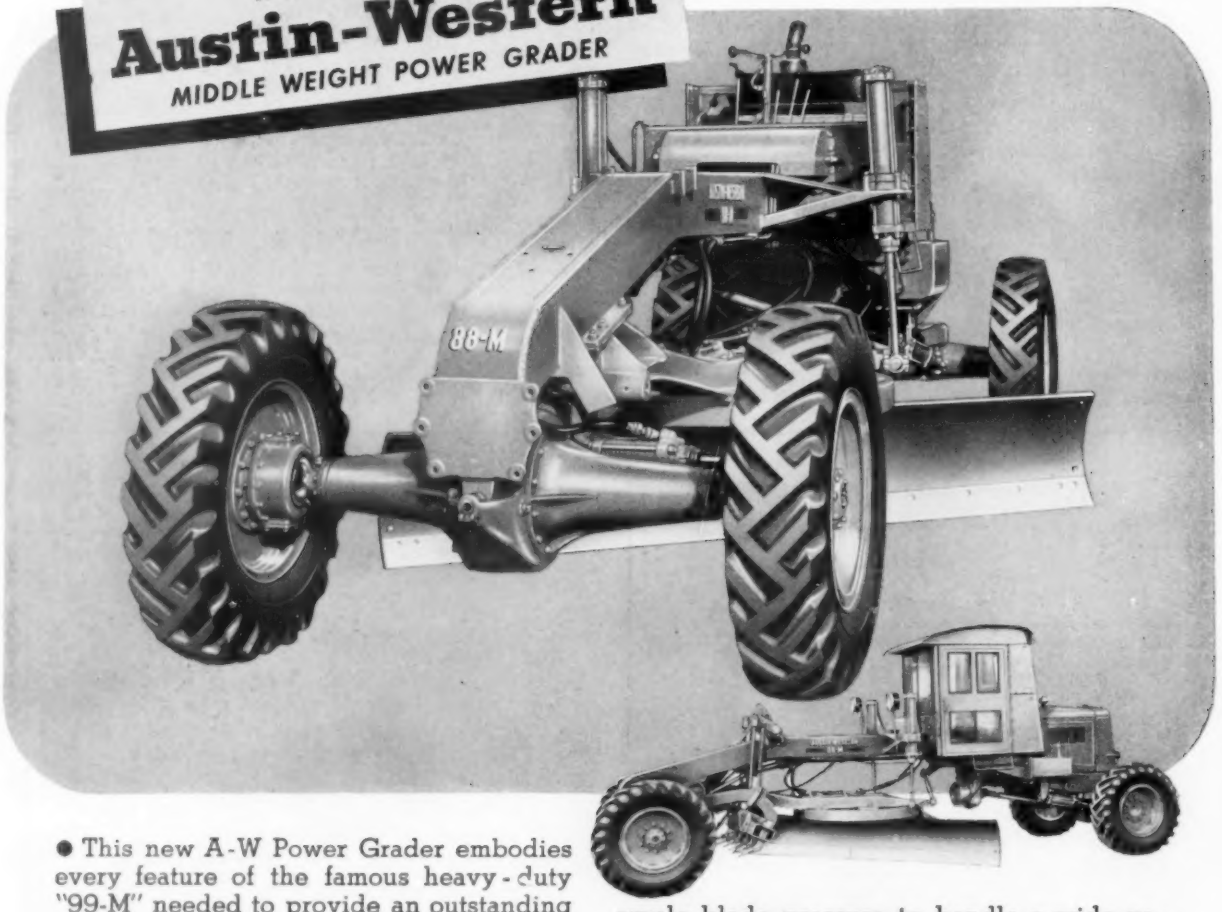

● This new A-W Power Grader embodies every feature of the famous heavy-duty "99-M" needed to provide an outstanding medium weight machine... the extra power of All-Wheel Drive... the greater maneuverability of power-operated All-Wheel Steer ... the speed, economy and efficiency of Precision Side Shift and Controlled Traction.

The unrivaled champion of the middleweight power grader field, the "88-M" has ample blade pressure to handle a wide variety of construction and maintenance jobs with new economy and efficiency. Only a "99-M" can equal its versatility on grading, ditching, scarifying, mixing, and backsloping operations.

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THE AUSTIN-WESTERN ROAD MACHINERY CO., Aurora, Illinois

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ROLL-A-PLANES • MOTOR SWEEPERS • SHOVELS AND CRANES • SCARIFIERS • DUMP CARS • TRAIL CARS

Traffic Control and Facilitation

Conducted by Traffic Control & Facilitation Committee, Institute of Traffic Engineers, 60 John St., New York

Merwyn A. Kraft, Chairman; Virden A. Rittgers, Vice-Chairman; David M. Baldwin, Martin E. Bruening, Stephen Butterfield, Edgar F. Copell, John E. Ecker, Fred W. Fisch, Emmett E. Kirwan, Foster M. Kunz, Alger F. Malo, Walter W. Matthews, John R. Moriarty, Henry W. Osborne, I. S. Shattuck, Matthew C. Sielski, Richard Siver, John L. Towers

Coming Loads on City Transportation

A review of address by Charles Gordon, Managing Director, American Transit Association, before Transit Industry War Emergency Conference, Chicago, February 1942

AN entirely new situation confronts the nation. The automobile is a luxury that we can no longer sustain. Looming ahead are shortages in gasoline and repair parts, and a present shortage in rubber. Replacing previous efforts to enlist public interest, city by city, in the importance of an efficient mass transportation system, the spotlight of public attention in every city is rapidly focusing upon the transit industry, and its performance in the emergency will become increasingly a matter of national concern.

Questions uppermost in the minds of every transit and traffic man are: (1) how much passenger traffic shall we be called upon to carry? (2) how fast and at what rate will it develop? (3) how and where are we to obtain the equipment, the men, and the materials needed to handle it?

Obviously, if the use of automobiles, upon which many of the defense plants are almost entirely dependent, is to be stringently curtailed, the alternatives are: (1) an enormously expanded program of new housing must be undertaken immediately, or (2) a program for providing and operating new transit facilities to carry workers from their present homes to these plants must be devised to the extent that the use of automobiles for this purpose is curtailed. This problem is immediate and grave.

To meet the increases in passenger traffic volume in 1941, following that already experienced in 1940, transit companies began to increase their orders for new equipment. But on September 1, 1941, the Office of Production Management issued an order curtailing the production of buses and trolley coaches. By this order, production of these vehicles was limited to a rate not in excess of that prevailing during the first six months of 1941, when a backlog of orders was already piling up due to the slowing down of manufacture while designs were being changed to eliminate the use of aluminum.

The effect of continually mounting traffic demands, combined with lowered production under the curtailment order, has resulted in building up a backlog of approximately 5,000 undelivered transit vehicles on order as of January 1, 1942. These vehicles represent practically a full year's production under normal conditions.

Automobiles may go, but the people remain for the trolleys, buses, and trolley coaches to carry

"Without Limit, Subject Only . . ."

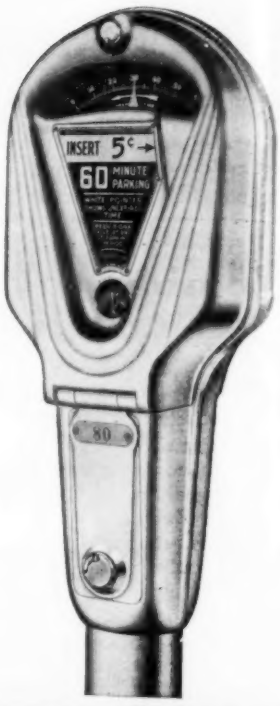
During recent months, however, the evaluation by government agencies of the relative need for various types of vehicles has been considerably changed, and transit vehicles instead of being subordinated to trucks are now recognized as of major importance. For February, 1942, the Office of Production Management permitted trolley coach and motor bus production to be increased to a rate nearly two and one-half times that of February, 1941. And for the month of March the War Production Board has authorized buses and trolley coaches to be produced without limit, subject only to the ability of the manufacturers to obtain necessary materials under an A-3 priority rating.

In the meantime, no method of obtaining priorities on materials for the construction of street-cars has been available except by resort to the cumbersome process of the so-called P.D.-1 form. During the past few months the transportation branch of the War Production Board has lent its full cooperation in an effort to remedy this situation.

Buses, street-cars, and trolley coaches are practically the only passenger vehicles being manufactured in the United States.

It has always been smart to install Dual Automatic Meters

★ ★ *BUT NOW IT'S PATRIOTIC!* ★ ★



UNCLE SAM has asked us to save tires and rubber . . . and Dual Automatic Meters are doing their part. In cities all over the nation they are helping motorists keep from wasting gasoline and tires in search of a parking space. Professor Arthur L. Shepard of the University of Michigan has said, "An oil company finds that it costs 3¼ cents to drive around one block looking for a parking space." And that doesn't count tire wear! Dual Automatic Meters help put a stop to such wasteful driving.

What's more, they aid National Defense by reducing fire hazards because the proper spacing of cars makes buildings more accessible in case of fire. They bring about a faster movement of traffic because they reduce congestion. And finally, they help hold down the ad valorem tax burden with their penny and nickel fees. Yes, it's not only good business to install Dual Automatic Meters . . . it's patriotic, too!

The Original CARL MAGEE METER . . . Licensed under Vehicular Parking, Ltd.

DUAL PARKING METER CO.
Commerce Exchange Building Oklahoma City, Oklahoma

Cost Records Favor Murdock

Patent Pending

Wherever records are faithfully kept of repairs and maintenance costs those records favor Murdock Outdoor Water Service Devices.

Low cost maintenance is particularly important right now as national defense absorbs the city employee manpower of the nation.

Murdock Outdoor Water Service Devices stand up in daily service with only an occasional rewashering; seldom a major replacement.

In the AIR LOCK Murdock has presented to the nation the most sanitary and practical Outdoor Drinking Fountain obtainable.

For communities where there is no danger of contamination of the fresh water supply of an Outdoor Drinking Fountain by the back-flow from a clogged sewer we recommend the use of Murdock Outdoor Bubble Fonts.

It pays to specify Murdock

The Murdock Mfg. & Sup. Co.
426 Plum St., Cincinnati, O.

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The Most Reliable Name on Water Service Devices

Here's a Portable TAR MELTER *built for real SERVICE*

This sturdy Tar Melter is made to stand up under roughest handling. Made of heavy steel plate with hinged cover and cast iron doors. Available in several sizes.

And whenever hot lead is used, Sperry Lead Melting Furnaces are considered standard equipment.

Write today for complete details and prices.

Yes— **We can make PROMPT DELIVERY**

D. R. SPERRY & CO.
Batavia Dept. I Illinois

Why play blindman's buff?

"Some people waste a whole evening trying to find a 'nice,' 'cheap' place to stay. Not me! I pick out a good hotel and my worries are over. Everything I need is right at my elbow."

J. D. Findlay, Raleigh, N. C.

AMERICAN HOTEL ASSOCIATION

FOR A FRESH START STOP AT A **HOTEL**

Shock I—Rationed Automobiles

The chart on page 79 shows the registered automobiles in use at the end of each year from 1938 through 1941, rising from 24,350,000 in 1938 to 27,675,000 in 1941. The two dotted lines carried to the year 1945 are based on our estimates of the probable maximum and minimum number of serviceable automobiles that will be registered at the end of each year.

Shock II—Rubber Shortage

The effect of this decline in registration, shown on the chart, at least during the present year, would not, in the absence of any other major factors tending to limit motor vehicle *use*, have a very startling effect upon public transit traffic. *But the registration drop will be accompanied by tire rationing.* This is the *second* factor which must be evaluated.

Approximately 93 per cent of our crude rubber comes from areas occupied by Japanese naval and military forces. The remainder is imported from Africa and Latin America or made in synthetic plants of limited capacity. During recent months our consumption of crude rubber has been at the rate of approximately 50,000 tons per month, of which about 75 per cent has gone into tires. Before the rationing order, replacement sales of all types of vehicle tires were running at the rate of nearly 4 million tires per month, and on December 11, 1941, when the sale of new tires was rationed, there were available somewhere between 7 and 8 million tires—equivalent to about two months' normal consumption at the then current rate.

The rubber situation presents a transportation crisis. With every reasonable reduction in automobile mileage, maximum use of retreading and recapping, and every other expedient that can be devised to extend the life of tires, it is improbable that there will be much rubber left on civilian motor vehicles at the end of two years unless radical steps to meet the problem are devised. Should the war end at about that time, there would have been built up a potential demand for approximately 120 million replacement tires, with no allowance for tires to equip new automobiles to be produced thereafter. In 1940 the tire manufacturers produced approximately 60 million tires. There is thus a clear indication that a serious tire shortage may be expected even after the peace.

Effect on Transit

In the complete absence of automobiles there would be a new transit load of 43 per cent of present city auto travel, or about 12 million passenger trips per year. This practical doubling of present transit volume would completely swamp all available or prospective facilities.

The best information on the probable *immediate* reduction in motor vehicle usage resulting from the tire shortage is obtained from a recent Gallup poll which reports that 53 per cent of automobile users are planning to reduce their automobile driving 45 per cent to conserve tires. This is equivalent to about 20 to 25 per cent of the total.

Based on the figure of 12 billion additional rides to be handled by public transit if automobile use were discontinued entirely, we can estimate approximately 2.4 to 3 billion new rides in 1942 resulting directly from tire conservation.

The 1942 estimated increase is at least 20 per cent over 1941, or three times the increase of 1941 over 1940. Traffic increases of 20 per cent in any one year are beyond anything which the industry has ever experienced. Given federal cooperation in actually obtaining the vehicles necessary to the handling of these loads, and local government cooperation in the best use of facilities, the transit industry has the opportunity to win the permanent recognition and patronage of the American people. What is needed is not only the most efficient operation that the times permit, but a sincere spirit that makes friends of as many as possible of these new passengers.

Problem of Curb-Lane Use

THE preceding article predicts a drastic decline in automobile registrations and gives a measure of the coming public dependence on mass transportation vehicles. In spite of predictions, however, there is recent evidence that truck and automobile traffic must continue in substantial volume if war needs are to be satisfied. All the cars that remain will continue to seek the business districts. That is what cars are for chiefly. Parking congestion is a product of light traffic as well as heavy traffic, because cars seek curb space first, before going to parking lots.

Whatever happens to the private automobile will be temporary, whether measured in months or years. Happy days will come again. Should the cities find it possible to breathe without congestion, it is a golden opportunity to prepare for the return of the prodigal motor car while taking care of the cars that remain with us. Four steps are indicated in the next column:

1. Organize curb space along busy streets. Set aside spaces where no stopping or parking may be permitted. Establish loading and unloading zones for passengers and goods and, in sections left over, lay out spaces in which limited parking may be allowed.

2. Establish appropriate regulations governing the use of curb space for these purposes and set out necessary signs.

3. Enforce these regulations uniformly and strictly.

4. If, when, and as further measures are necessary, provide off-street storage for the accommodation of vehicles that cannot be taken care of along the curbs.

Parking meters provide the incentive and the revenues by which studies and layouts can be made and regulations governing curb use established. They also pay for officers and other means of strict enforcement, the cost of which they actually reduce. Parking meters also provide positive time proof of violations for presentation in court so that disputes and irregularities are avoided.

Parking meters have been successful in over 400 cities and towns because they are an aid to enforcement of curb use requirements and introduce an element of self-regulation on the part of the motorist. Among other important enforcement values, meters provide the following:

1. Unless he actuates the meter immediately, to start the parking time interval, a motorist is in conspicuous violation of the parking regulation. Timing of his occupancy of a parking space, therefore, starts upon his arrival.

2. By his actuation of the meter a driver is made definitely conscious of the length of time he is allowed. This is a useful element of wartime discipline.

3. At the end of the parking interval, which is correctly timed, a conspicuous target is displayed by the meter, thus disclosing to citizens and officials that the car is in violation and that the enforcing officer is lax if he does not tag the violator promptly.

4. An officer in a car or motorcycle covering from 300 to 350 parking spaces and intermediate "no parking and loading zones" can observe, as he passes, all cars in violation and take appropriate action.

5. Because the timing is accurate, tickets for violations are enforceable in court without dispute. Motorists normally prefer to pay a fixed violation fee, thus to avoid court attendance. This, together with reductions in the number of violations, reduces the time of officers in court and the cost of court handling.

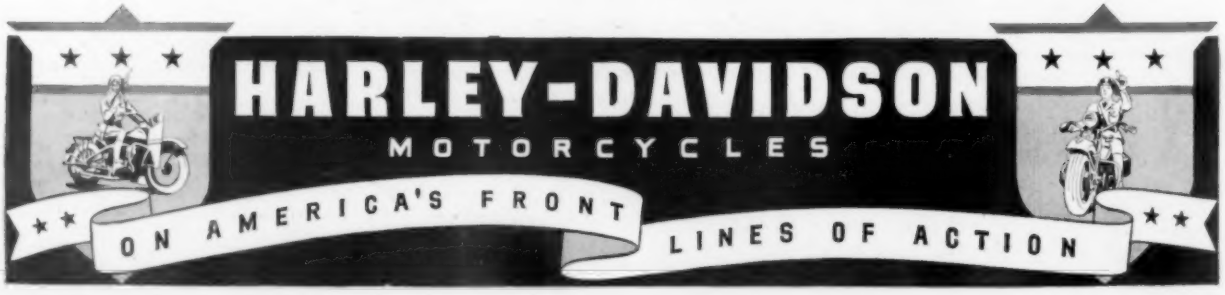
LEXINGTON, KENTUCKY

picks *Thoroughbreds*

IN the heart of the blue grass country, Lexington knows the value of quality and stamina—in motorcycles as well as in race horses. That's why Harley-Davidson Motorcycles "won the nod" of Lexington's Police Department—where a well-balanced selection of solo machines and Servi-Cars is made up of Harley-Davidsons exclusively.

Their power, stamina and dependability make Harley-Davidson Motorcycles the most practical and economical vehicles to meet today's increased traffic and protection problems. Ask your Harley-Davidson dealer to tell you why more than 3,600 American cities and towns have bought Harley-Davidson Police Motorcyles.

HARLEY-DAVIDSON MOTOR CO., Milwaukee, Wisconsin



6. Meter revenue provides necessary equipment and pays for the officers assigned to the specific duty of enforcing curb use regulations.

7. Parking meters are the simplest, most economical, and most convenient means by which curb use regulations can be enforced.

Speed War Transport

A number of check surveys have been made recently to learn the experience of public officials and others, in cities where parking meters have been installed, in relation to wartime traffic needs. Other than war factors were ignored. THE AMERICAN CITY addressed a questionnaire to a number of city traffic officials, listing ten devices commonly used to speed up the movement of traffic. The officials were asked to number the list, from 1 to 10 in the order of their demonstrated value. The results were published in "Moving Defense Goods Through City Streets," in the December 1941, issue. Of the officials reporting, 19.8 per cent rated parking meters number 1, and another 50 per cent of the reports rated meters as 2, 3, 4, 5, or 6. Thus, 69.8 per cent of the officials reporting indicated that they had found parking meters to be either the best or among the best means to speed up traffic movement.

The following excerpts are from a "Report on Parking Meters in Illinois Cities" by Illinois Division of Highways, Bureau of Maintenance, Traffic Control Division, February 1, 1942:

Bloomington: Police estimate 70 per cent improvement in traffic conditions. *Macomb:* Recently installed. Police believe congestion relieved and accidents reduced by meter control of parking. *Decatur:* Police able to spend more time on enforcement of other regulations. Congestion relieved and accidents reduced. *Springfield:* Congestion definitely relieved. Police estimate 75 per cent improvement. *Mt. Vernon:* Traffic conditions greatly improved. Police very much in favor of metered control. *Marion:* Congestion definitely relieved. Some benefit to traffic to and from Illinois Ordnance Plant. *Benton:* Congestion definitely relieved in metered area. *Peoria:* Congestion relieved. *Alton:* Congestion definitely relieved. Double parking eliminated.

Taxicab, Bus, and Transit Companies

In January 1942, THE AMERICAN CITY checked the conclusions of traffic officials by addressing a series of questions to the taxicab and mass-transportation companies in the same cities.

This sentence summarizes the findings:

"The agreement is almost unanimous that parking meters aid public carrier operations generally, make these operations safer, and would speed traffic in defense areas."

Fire Chiefs

Fire departments are hampered in their fire runs and fire hazards are increased if fire apparatus is slowed by congested traffic. Faced by the possibility of air raids, bombing, and sabotage, these problems are now of greater than normal importance. A canvass was made of chiefs of fire departments throughout the United States to determine if parking meters have helped to solve this problem. The following answers were received:

Replies		—Did the Installation of Parking Meters in Your City— Reduce Fire Hazard	Keep Hydrant Spaces Open	Speed Fire Runs	Make Fire Runs Safer	Reduce Traffic Congestion	Speed Movement Other Traffic
YES	Number	44	54	59	59	60	59
	% of Total	79%	93%	88%	91%	94%	94%
NO	Number	12	4	8	6	4	4
	% of Total	21%	7%	12%	9%	6%	6%

Elwood, Ind.—When parking meters were installed, traffic conditions were bad. I have seen the time when the Fire Department could not drive through the congestion. Meters did away with that condition entirely.

Scottdale, Pa.—There is no doubt that fire hazards are reduced and fire runs made safer by parking meters.

Zanesville, Ohio—The use of parking meters has been a big help to our department.

Passaic, N. J.—Previous to installation of meters, parking conditions were terrible. Meters have widened our streets for traffic at least twelve feet. From the Fire Department's standpoint, many hazards have been eliminated and we save considerable time in answering an alarm. This is already starting to reduce insurance rates. Our merchants at first were absolutely opposed to the meter plan. They have asked, and the City Commissioners complied with their request, to extend the enforcement time until 9 P. M.

Olympia, Wash.—Meters have nearly eliminated double parking, leaving room to operate our equipment without danger. We make better speed.

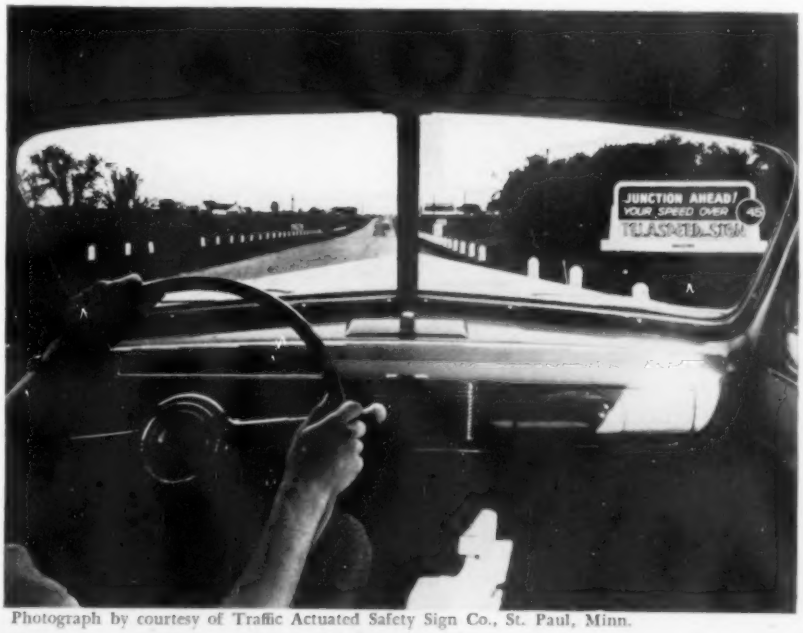
Norwich, Conn.—Parking meters have greatly reduced fire hazards by keeping hydrant spaces open, speeding up fire runs, and reducing the danger of accidents.

In England, in spite of reduction in the number of vehicles and in vehicle mileage, peak-hour congestion on main arterials is reported to be as great as before the war. Similarly, many areas of the United States may not experience much relief while some areas may expect increased traffic difficulties. In viewing the congestion problem, it is significant that in busy areas only one or two vehicles in 10 are moving during peak hours. The others are parked or loading and discharging cargoes.

Congestion and other urban traffic difficulties tend to disappear when convenient and adequate accommodations are provided for standing vehicles and for those cruising in search of harbor.

The foregoing article is excerpted from a survey by Guy Kelcey, President, Vehicular Parking, Ltd., copies of which are available to municipal officials.

New Traffic Sign Records Your Speed



Photograph by courtesy of Traffic Actuated Safety Sign Co., St. Paul, Minn.

The driver is looking at a Telespeed Sign which flashes his speed to him, as a reminder that he is responsible for a valuable cargo or life

Protect

YOUR FIRST LINE OF DEFENSE *with* HOLOPHANE REFRACTORS

FENCE LIGHTING is an indispensable factor in any effective system of plant protection. Holophane Refractors, designed for this purpose, have been installed in over 350 major armament plants in recent months.

WHY REFRACTORS? . . . They control the light vertically *and* horizontally, shaping the light to the specific job needs . . . Made of heavy prismatic glass, they are durable and impervious to the effects of time and weather. Their high output efficiency and controlled distribution permit wider spacings to reduce operating and maintenance costs.

Three types of refractors are most widely used for protective lighting; (1) 2-Way asymmetric, for fence lighting; (2) C-Way asymmetric, for roadways; (3) Symmetrical, for yards and gates.

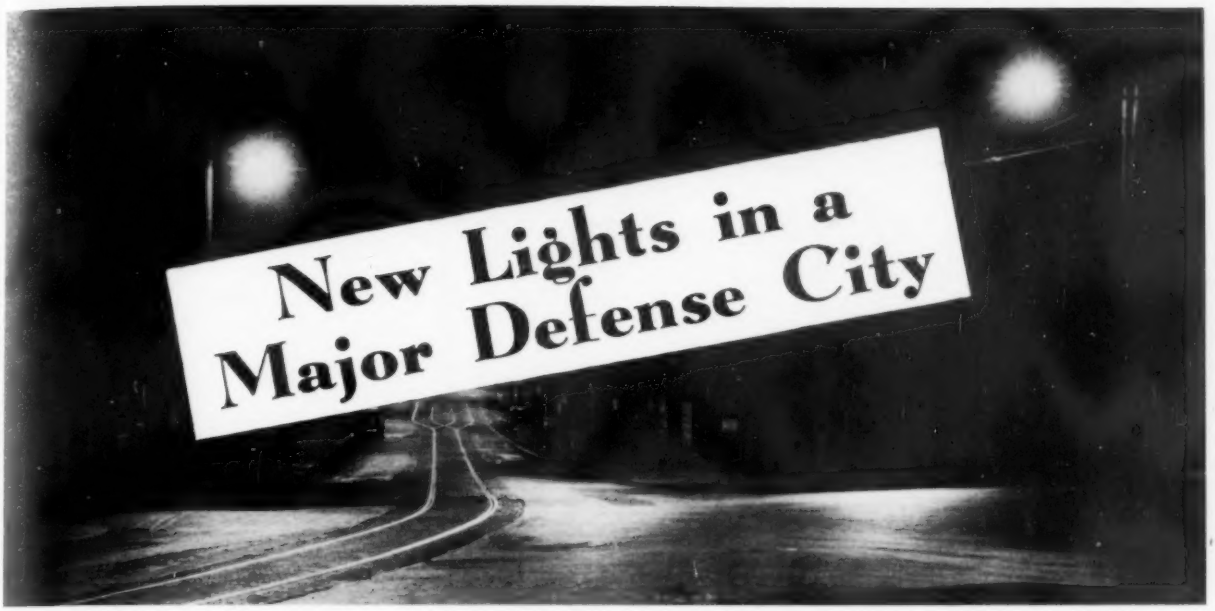
WRITE FOR COMPREHENSIVE BOOK of specifications and installation methods for protective lighting, sent without cost or obligation.

Complete units, equipped with Holophane Refractors, are made by

GENERAL ELECTRIC COMPANY Schenectady, N. Y.
PHILADELPHIA ELEC. & MFG. CO. Philadelphia, Pa.
LINE MATERIAL COMPANY Milwaukee, Wis.
WESTINGHOUSE ELEC. & MFG. CO. Cleveland, Ohio

HOLOPHANE CO., INC. *Lighting Authorities Since 1898* **342 MADISON AVENUE, NEW YORK**
HOLOPHANE CO., LTD., 385 YONGE STREET, TORONTO, CAN.

YOUR PLANT IS SAFER WITH HOLOPHANE REFRACTORS



New Lights in a Major Defense City

By GEORGE H. REUSSNER

Director, Department of Streets and Public Improvements
Bethlehem, Pa.

IN installing a modern street-lighting system, using directional luminaires with 4,000- to 10,000-lumen lamps 25 feet above and 4 to 8 feet out over the pavement, Bethlehem, Pa., started something good for the merchants and people of Bethlehem and several adjacent cities. For the excellence of the new system was noised as far as Wilkes-Barre, and city officials from that city, and from Lancaster, Reading, and Allentown came and were conquered. Bethlehem learned from the example of Easton[1]; other cities, notably Allentown[2], have taken a leaf from us.

Bethlehem has had street lights of one kind or another for upwards of 200 years—our age in 1942. Twenty years ago it was arc lights. But the glimmer of modern lighting could be seen as long ago as 1916 when our merchants bought boulevard lights in alabaster globes on 10-foot posts and presented them to the city. This type of lighting extended through the business districts, the city paying for the underground cable installation and standards and the utility company furnishing maintenance and energy.

But by 1935 this costly and inefficient boulevard lighting was known to be obsolete. So we decided to replace it with modern luminaires with glass refractors, spaced and mounted in accordance with I. E. S. recommended practice.

The New Lighting Spreads

The first installation was on East 4th St., which connects with the road to Easton, so that visitors from Easton would feel at home and Bethlehemites would be proud to welcome them and other neighbors. This was in 1936, and the lamps were of 4,000 lumens or 400 candlepower, since raised to 600 cp.

This type of lighting was extended in rapid succession to Union Blvd., the entrance to the city from the northwest, to Main St., and to Elizabeth St. These three installations totaled 15 units of 400 cp and 115 of 600 cp, spaced from 120 to 160 feet apart, with a mounting height of 21 feet. The luminaires are suspended from 8-foot arms furnished by a local pole line hardware manufacturer.

In 1938, new lights consisting of four of 400 cp and 59 of 600 cp were installed on Hellertown Rd., entrance to the city from the southeast

In 1939, 118 units were installed along one side of Easton Ave., entrance to the city from the northeast. The luminaires equipped with 600-cp lamps were hung on 8- to 25-foot mastarms at a height of 21 feet above the pavement. In the same year, Wyandotte Ave. was enlivened by 22 units of this design.

In 1940, the city sold most of its boulevard lighting system to the utility, which installed a modern overhead series lighting system. The business districts were equipped with modern ornamental directional-type luminaires with 1,000-cp (10,000-lumen) lamps mounted on 3-foot ornamental brackets on Union Metal tubular steel poles spaced 90 feet apart in staggered arrangement. The mounting height is 25 feet which we have adopted as standard on all new installations.

In secondary business districts and main traffic arteries, enclosed luminaires with refractors were installed. The new "boulevard lighting" system totals 49 1,000-cp units, 261 of 600 cp, 51 of 400 cp, replacing 516 of the old boulevard lights. The new system includes the lighting on Broadway, entrance to the city from the southwest.

New Lighting Marches On

The most recent installation is on Shimersville Rd., a new street around the Bethlehem Steel Co. property. It consists of 400-cp lamps on 8-foot mastarms. Under construction on Bath Pike is a system consisting of 600- and 400-cp lamps spaced 140 feet apart and mounted 25 feet high. Half of this system is in service. Plans are ready for 600-cp lamps more closely spaced along 12 blocks of East Broad St. to serve a new defense area.

1. "An Outstanding Street-Lighting Installation That Nobody Regrets," pages 111, 113, THE AMERICAN CITY, November, 1935.

2. "A Planned Street-Lighting Program Designed to Save Lives," pages 91, 93, THE AMERICAN CITY, January, 1942.

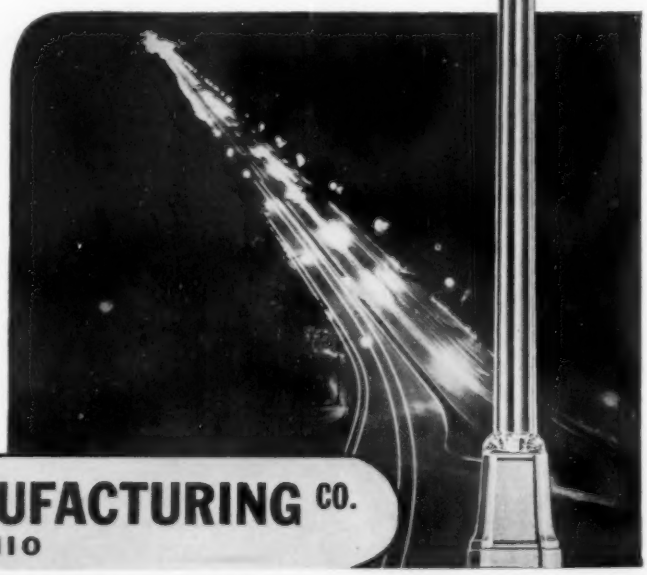
This man deserves the protection of modern safety lighting

OUTSIDE THE FACTORY... *too!*

● This war will be won on the production lines of America. The man behind the machine—the "soldier in overalls"—is a most vital cog in our nation's war effort.

Industrial management, realizing this fact, protects the worker by providing him with modern safety lighting in the shop. But is your city giving him the same protection—*outside* the factory? In normal years over 60% of all traffic fatalities occur after sundown—during the hours when thousands of our war workers are now moving to and from their jobs. They *need* the protection of modern safety lighting *outside* the factory, too!

Almost 35 years ago The Union Metal Manufacturing Company developed the *first* safety street lighting standard. Today, in our vast line of designs, there's an attractive Union Metal standard that will give you the most efficient distribution of light and the longest service at lowest maintenance cost. Experienced Union Metal engineers stand ready to help you work out the details of any safety lighting program. Let us help you keep 'em rolling—*safely.*



THE UNION METAL MANUFACTURING CO.
CANTON, OHIO

Results of Adequate Lighting

Engineers of the utility inform us that our new street-lighting system provides six to seven times the illumination of the old system, due to modern design. Besides general satisfaction, the principal results are definite protection against crime and a materially lowered accident rate, despite an increase in personnel at one plant alone from 12,000 men in 1934-35 to 28,000 today. Bethlehem is a war industry town! Modern design means economy through the "recovery" or efficient utilization of light. The balance sheet, after all these improvements, finds the city paying the utility $70,000 per year against the $61,000 plus the cost of maintenance which the utility now provides. At an increased cost of 10 to 15 per cent, 600 per cent more light on 19 miles of business and through-traffic streets was provided by this well-advised street-lighting program.

It's light on the pavement that counts—Broadway, Bethlehem, before and after relighting.

Old boulevard lighting at left and modern lighting at right—on West Broad St. looking east at Main St., Bethlehem, Pa.

Lighting in Wartime

THE regulations controlling the extinction of all outdoor lighting, imposed at the outbreak of war, were inevitably framed without actual experience of a prolonged blackout and were based on the broad assumption that, with certain qualified exceptions, no light at all could be permitted in streets and open spaces. It was evident, however, that in some circumstances a certain degree of illumination, necessarily a very low value, would be essential.

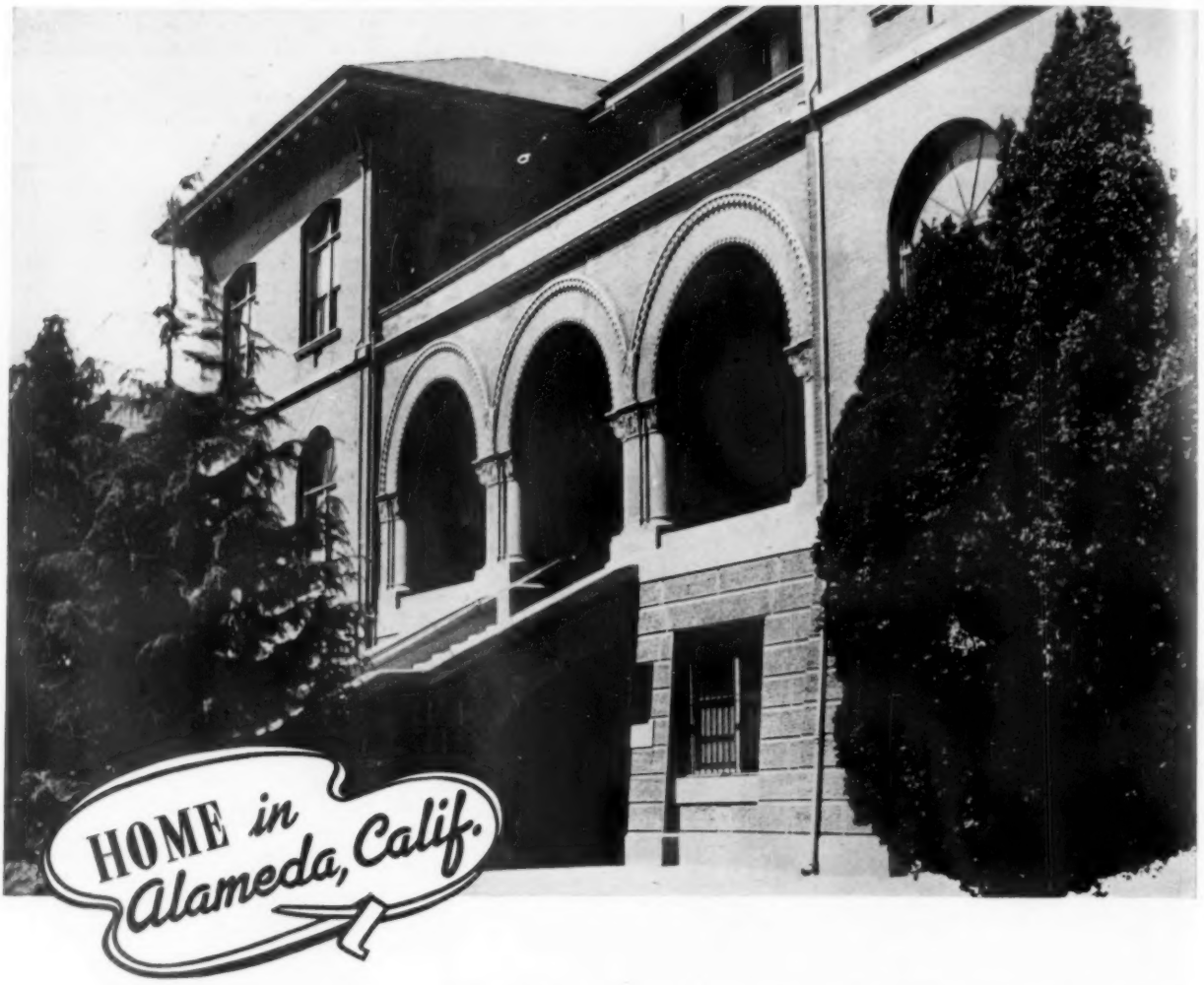
Some useful experience had been gained during the last great war. The method first adopted of screening existing street lamps produced a cone of light, a splash of brightness under the lamps, and dense obscurity in between. It was largely as a result of an observation balloon trip that the drawbacks of such methods, which resulted in a multitude of points of light almost as visible from above as the actual street lamps, were realized. Later methods resulted in a more even spreading of the light over the road surface, though the nature of the lighting in different districts varied greatly, and nowhere was it possible to approach the degree of uniformity which we have attained today.

The conditions to be met in the present circumstances were evident: (1) fittings should be so designed that no light was emitted above the horizontal; (2) the illumination should be evenly distributed between posts; and (3) the illumination should not exceed a certain maximum.

This problem was approached by way of the work already done on the fittings designed to furnish even illumination of 0.002 and 0.02 footcandles, and experiments were first conducted on stretches of roadway illuminated to this order. The first point could only be settled by aerial observations. Much patience was necessary in order to obtain convincing results, in view of the many variable factors, especially weather conditions. The second point was studied by the aid of ground observations in which many groups of volunteers took part, some as drivers of cars, others as pedestrians.

To cut a long story short, it was ultimately decided that the order of illumination furnished by the now-familiar wartime street lighting or "synthetic starlight" (approximating 0.0002 foot-

By J. S. Dow, B.Sc., A.C.G.I., F.I.E.S., Honorary Secretary of the Illuminating Engineering Society. Journal of the Royal Society of Arts, (England), No. 4603, Vol. XC, December 26, 1941, p. 58. Highway Research Abstracts, March, 1942.



☆ The City of Alameda, California, on an island a little southwest of the Oakland business district, is proud of its 67 per cent home ownership. For 12 years The Home Insurance Company has carried all the fire insurance for the Alameda City Council, Public Utilities Board and Library Board.

☆ In November, 1931, The Home Insurance Company was authorized by the City Council to make:

1. A complete survey of existing insurance;
2. A report to include an analysis of the insurance and of the physical properties.

☆ Our investigation developed that there were 125 fire policies and one explosion policy carried with 40 different agencies. The whole story is yours for the asking. Suffice it here, that as a result of The Home survey, the amount of insurance was increased by $32,000 and the premium was reduced by $848.15. Checkups are made periodically, and the amounts of insurance are based on *up-to-date values.*

The Companies in The Home Fleet

THE HOME INSURANCE CO. OF NEW YORK
THE BALTIMORE AMERICAN INSURANCE CO.
THE CAROLINA INSURANCE COMPANY
CITY OF NEW YORK INSURANCE COMPANY
THE FRANKLIN FIRE INSURANCE COMPANY
THE GEORGIA HOME INSURANCE COMPANY
THE GIBRALTAR FIRE & MARINE INSURANCE CO.
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ENGINEERING DEPARTMENT

THE HOME FLEET OF INSURANCE COMPANIES

59 MAIDEN LANE NEW YORK CITY

When you write for that catalog, kindly mention THE AMERICAN CITY.

candles) could be provided with safety. Although the amenity-value of this very low illumination was naturally very much less than that derived from the higher values previously mentioned (0.002 and 0.02 ft. c.), it was still found to be of substantial utility. It is true that when the very much higher illumination of moonlight (0.01 to 0.02 ft. c.) is available its effect is but small, but on very dark nights there is all the difference in the world between "synthetic starlight" and complete obscurity—and it is on such nights that some degree of artificial lighting is most vitally needed.

The illumination received from summer sunlight on a clear day may attain 10,000 footcandles, while the value derived from faint starlight may be of the order of 1/10,000th—a ratio of one hundred million to one. The eye is thus called upon to adapt itself to an amazing range, and in order to make the best use of the meager light available we should take as a starting point the behavior of the eye under these abnormal conditions.

The conditions of "twilight vision" are well known. Complete dark-adaptation of the eye is only attained slowly, and may be greatly impaired by a momentary flash of light. Hence the need for a period of at least several minutes, in order to enable the eye to function properly when one passes from a brightly lit interior into the external darkness, the importance of avoiding flashes from incautiously directed torches, and the need to keep the brightness of direction-signs below a certain level, which under conditions of wartime street lighting appears to be in the neighborhood of 0.1 equivalent footcandles.

These circumstances need to be taken into consideration in arranging matters in our streets so as to get the best value from wartime street lighting. Of outstanding importance is the accentuation of contrasts between objects and background, for under these "twilight" conditions an object of quite substantial size which reflects only 20 to 30 per cent less light than the adjacent roadway may easily escape recognition. Such devices as the whitening of curbs and the trunks of trees along sidewalks are therefore extremely useful, and the idea might well be more extensively practiced, especially at important crossings and safety islands.

In the early stages of the war, there was a tendency to adopt lamps obscured with blue lacquer for essential outdoor work. In most cases, this course was adopted as the readiest way of dimming the lamps, but there was also an impression that blue light had the advantage of being less visible from overhead. There is no time to enter upon this fascinating and somewhat complex problem of the visibility of objects illuminated by colored light. But it may be said that there is no outstanding advantage, such as would compensate for the many drawbacks, to justify the adoption of colored light in place of white for a general system such as wartime street lighting.

Other problems are the design of masks for motor car headlights, the production of standard civil-defense signs and their illumination, the qualities of fluorescent and phosphorescent paints, and the contriving of "light locks" to enable people to pass in and out of illuminated interiors without any light emerging. It is interesting to recall that the light-lock problem was already receiving attention before the outbreak of war. The idea, now familiar, of a right-angled corridor with blackened walls, was originally suggested for an exactly opposite purpose —to prevent the entry of light from outside into dark rooms used for photographic processes.

Fatal Accidents and the Blackout. It has naturally been a difficult experience for people to adapt themselves to such conditions, which have served to increase very greatly the normal hazards of the streets. The records of two years of war, during which about 20,000 people have been killed on the roads of Britain, therefore, deserve study. By far the greater number of fatal accidents to pedestrians occurred during periods when there was no moon. It is in these moonless periods that wartime street lighting proves beneficial.

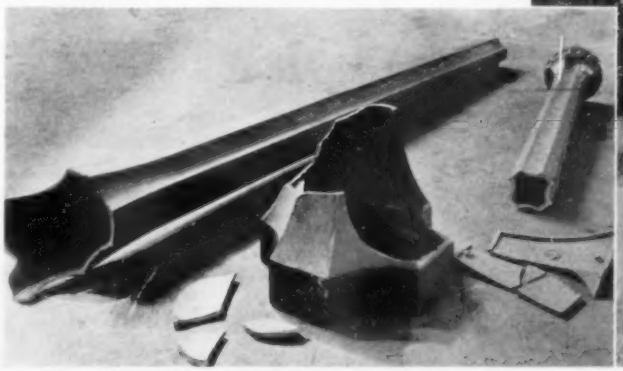
There are still many places which have not installed wartime street lighting. In addition, a good deal might doubtless be done to improve visibility under present conditions: by promoting greater uniformity of action in regard to the use of white paint and other safety precautions; by taking measures to ensure that the brightness of motor headlights and sidelights not only does not exceed the present minimum requirement but does not fall too far below it; and possibly by permitting a somewhat higher illumination (say up to 0.002 ft. c. which is still only about one-tenth of full moonlight) at safety islands, traffic roundabouts, and pedestrian crossings.

Workers' Accidents Bad

TENS OF THOUSANDS OF "GREEN HANDS" are now employed in the expanding war program, and may more thousands are working without sufficient training on machines and with tools with which they are not thoroughly experienced. Industrial casualties are just as serious as killed and wounded soldiers, sailors, and marines. Man-power on the home-defense front is as critical a problem as material shortage, which already has held back production in many instances. Remember that there are ten people working behind the lines to one soldier fighting. During the first nine months of 1941, 340,000,000 man-days of production were lost because gainfully employed workers suffered death or injury at work, at home, or in traffic.

—Howard P. Wall, chairman of the executive committee at the Greater New York Safety Council convention held March 3-6 at the Pennsylvania Hotel, New York City.

This used to be regarded as refuse. In these days when old metals are precious, it would ordinarily be called scrap—except that maintenance and repair are even more precious than scrap, and a Westinghouse Flexarc welder put this Humpty Dumpty cast-iron standard together again as good as new. The job was performed by city maintenance men at Grand Rapids, Mich.



"KEEP THEM ROLLING"

On Bituminous Roads Constructed and Repaired with LITTLEFORD EQUIPMENT

Photo by U. S. Army Signal Corps

Sections of Airport Runways and Defense Roads are easily repaired with a Littleford No. 101 Utility Spray Tank. It combines three units in one. Spray Bar for small application work, Hand Spray for patch work, and Pouring Pot Outlet for crack filling, etc. Will handle tar, asphalt, emulsions and road oils. Made in three styles —Two and Four Wheel Trailers and Truck Mounted.

The Trail-O-Roller is the portable unit that can be trailed to the job. When Airport Runways and Defense Roads need repairs, this Roller can be taken to the job with the repair crew. Gives as much compaction as a 5-ton tandem roller, yet is compact and easy to handle.

Access roads to Defense Plants, Cantonements can be constructed and kept in repair with a Littleford 84-HD Kettle. Heats materials faster and keeps a constant flow of materials due to patented construction. With a Hand or Mator Spray Attachment, this Kettle becomes the most efficient portable heating unit made today.

BLACK TOP ROAD MAINTENANCE EQUIPMENT LB SINCE - 1900

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Improving Municipal Administration

Current Items from the Public Administration Clearing House

Service Leaves for Mayors and Other Elected Officials

MAYORS AND OTHER ELECTED PUBLIC OFFICIALS enlisting or drafted into the armed forces as the war progresses probably will relinquish their salaries in many cities but will not forfeit the office, information from the American Municipal Association shows.

Decision as to whether or not the offices are vacated, necessitating a special election, may differ from city to city, however, depending on the state constitution or state laws, the city charter, or the ruling of the city attorney, the Association says. Cited were the procedures in Milwaukee and Atlanta, whose mayors plan soon to enter military service.

Milwaukee's legal department in the case of Mayor Carl Zeidler advised the council it would be acting legally to grant leave without pay. According to the city attorney, "if . . . the absence of the mayor works a hardship on the city, the council may also revoke its action." Present plans are to make one of the councilmen acting mayor, at councilman's pay, according to report.

Mayor Roy LeCraw of Atlanta, who has been called to active duty with the National Guard after serving 15 months of a four-year term of office, has not asked the city council for leave. According to the city attorney, the council itself can vote a leave, declare the post vacant, or set a date for election of a new mayor. If a leave is voted, the acting mayor will draw the mayor's salary of $8,000.

Few court cases have come up on the retention of civil offices by elected municipal officials while serving their country, the Association says.

Late last year the Pennsylvania supreme court held that the mayor of Uniontown could not retain his office while holding a commission in the United States army, compensation being received in both capacities.

A contrary decision was handed down in February, 1941, by the Supreme Court of Appeals of Virginia, which held that a councilman inducted as a National Guard officer with army pay had not forfeited his office despite a state statute forbidding dual employment or compensation by both the United States and the state or a subdivision. The councilman continued to collect his $500 annual salary.

Opinions of attorneys-general of at least six states, rendered during the last year, on the matter of dual office-holding with respect to army commissions and public positions showed varying interpretations also, according to the Association.

Washington Municipalities Organize for Civilian Protection

Situated in the West Coast zone of war operations, with large concentrations of war industry—particularly ships and airplanes—and with many thousands of troops encamped, the local governments of the state of Washington face intensified problems and responsibilities.

After surveying the extent of local defense activities, the Association of Washington Cities has reported on preparations of the eight representative municipalities of Bremerton, Everett, Olympia, Prosser, Seattle, Spokane, Tacoma and Wenatchee.

The activities reported by officials in one or more of these cities include:

Air rid sirens ordered for prompt installation
Air raid warden service
Auxiliary police and firemen
Broadcasting 15-minute program 5 days a week, instructing the public on various phases of civilian protection
Civilian defense corps or units
Communications division furnishing telephone company with lists of numbers to take precedence in any emergency
Communications unit, tying in messenger boys, Boy Scouts, and De Molay boys for courier service
Engineering department assigning extra guards to movable bridges
Engineering department organizing groups of key men to aid in blacking out traffic signals
Engineering unit guarding city's 26-mile water pipe line, with mobile chlorinators ready in case main unit disabled
Enrollment offices maintained by volunteers
Evacuation unit, registering and numbering all children under 6 years, with representative as "mother" of each block
Establishment of emergency hospital facilities
Neighborhood instruction in incendiary fire control and protection against chemical warfare and air raid damage.
Leaves of regular police and firemen cancelled
Lighting department establishing guards at all city plants, installing floodlights to guard against prowlers
Medical unit completely set up, including doctors, dentists, and qualified Red Cross members
Mobilization test held, using all ambulances and panel trucks assembling "injured" from various parts of city
Motor reserve battalion organized by transportation commission to transport troops and civil guards to evacuate civilians if necessary
Police reserves include home defense infantry unit fully recruited and trained
Portable fire-fighting equipment readied
City making a complete registration of all citizens over 18, together with questionnaire as to equipment they have that might be needed
Supply unit working with disaster committee of Red Cross
Survey locating all equipment which might be needed in emergency; property owners signing agreement that equipment might be used if necessary
Tank trucks made available to carry water if main breaks
USO recreational buildings
Water department divided city into zones with trouble-shooting crews in each zone

Evacuation Planning

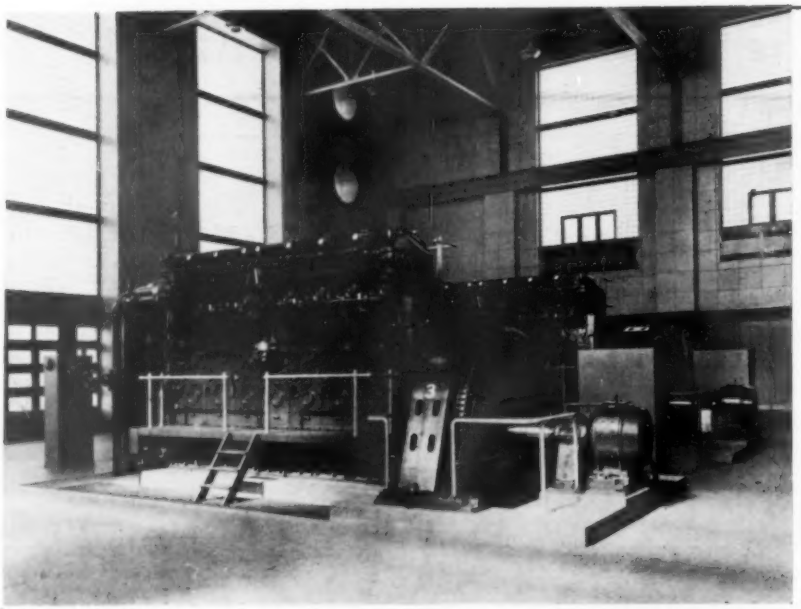
URGING that, if there is any possibility of bombing attacks on cities near our East and West Coasts, complete plans should be made now to provide for all eventualities, Walter H. Blucher, Executive Director of the American Society of Planning Officials, in the March *News Letter* of that organization, recommends the following constructive steps in evacuation planning:

(1) An inventory should be prepared showing all available public and semi-public facilities outside the danger zone. These would include summer and winter camps and hotels, CCC camps, etc. The inventory would show what evacuation areas might best be served by each of the facilities.

(2) An inventory should be prepared showing all available private housing facilities out of the danger area. This would include farms and other residences. This should include not only the physical facilities but a statement of the kind of people that can best be accommodated. Nationality, race, and age may be important factors. We can learn much from Great Britain's early errors and discoveries.

(3) A further study should be made of potential sites for new facilities. Where possible, these sites should be located on public property. Sites should actually be selected; site plans should be prepared now; building plans should be prepared now. Sites and buildings should be of such a nature as to serve a useful purpose, perhaps for recreation, when the war is over.

"The planning must be done now," says Mr. Blucher, "not when an emergency arises forcing the evacuation of large numbers of people from our Western or Eastern cities. This inventory and these studies can be made now by persons not needed for active war work. If we are fortunately proven wrong—if there are no attacks—our foresight will have lost us nothing."



Two 4-cycle heavy-duty RATHBUN Gas Engines with water cooled exhaust valves and oil cooled pistons, each engine directly connected to a 560 kw Electric Machinery generator. Note that the customary flywheel is absent, the generator rotor having been designed to supplant it.

These TWO **RATHBUN** Gas Engines

—using sewage digester gas for fuel—

generate electricity which drives two DeLaval pumps (one 21 and the other 42-mgd) also two 10,000 cfm blowers, in addition to auxiliaries with 200-hp load.

They are quiet and reliable and are designed for continuous service at their rated capacities.

The RATHBUN-JONES ENGINEERING CO., Toledo, Ohio

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★ FIRE ALARM ★ AIR RAID WARNING ★ AUTOMATIC FIRE DETECTION
★ POLICE SIGNALING ★ INDUSTRIAL FIRE ALARM ★ FIRE AND WATCHMEN'S SUPERVISORY

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NEWTON UPPER FALLS MASSACHUSETTS

Supreme Court Widens Path of Utility Rate Regulation

THE long struggle to make public utility rate regulation more effective has produced another victory before the United States Supreme Court. On March 16, in the case of *Federal Power Commission and Illinois Commerce Commission* v. *Natural Gas Pipeline Co. of America and Texoma Natural Gas Co.*, the Court unanimously upheld an order of the Federal Power Commission requiring the pipeline company to reduce its rates for natural gas—sold at wholesale chiefly to companies serving Chicago and vicinity—by $3,750,000 per annum. The order was an "interim" order, issued after the companies had completed their direct evidence but before the two commissions had concluded theirs; and although it was based on tentative use of most of the companies' figures, including the estimated cost of reproducing the property, the Court's language enlarges upon the freedom that a regulatory agency may exercise and, in the view of some members, indicates that a reproduction estimate—a cause of great delay and expense—is not an essential consideration, whereas it has usually been regarded as such since the famous decision in *Smyth* v. *Ames* in 1898.

The Court said: "The Constitution does not bind rate-making bodies to the service of any single formula or combination of formulas. Agencies to whom this legislative power has been delegated are free, within the ambit of their statutory authority, to make the pragmatic adjustments which may be called for by particular circumstances. Once a fair hearing has been given, proper findings made, and other statutory requirements satisfied, the courts cannot intervene in the absence of a clear showing that the limits of due process have been overstepped."

Justices Black, Douglas, and Murphy who joined in a separate concurring opinion (the prevailing opinion having been written by Chief Justice Stone), interpreted the words of the Chief Justice more concretely: "As we read the opinion of the Court, the Commission is now freed from the compulsion of admitting evidence on reproduction cost or of giving any weight to that element of 'fair value.' The Commission may now adopt, if it chooses, prudent investment as a rate base."

They concluded their comment with these words: ". . . the *ex post facto* function previously performed by the courts should be reduced to the barest minimum which is consistent with the statutory mandate for judicial review. That review should be as confined and restricted as the review, under similar statutes, of orders of other administrative agencies."

Justice Frankfurter, who has previously assailed the rule of *Smyth* v. *Ames*, wrote a short opinion, also favoring restriction of the scope of court review.

The Power Commission had used an undepreciated rate base (of $74,420,424), but had taken proper account of depletion and depreciation by providing for amortization of the total investment over the estimated life with the annual amortization allowance computed on a sinking-fund basis, using compound interest at the rate of 6½ per cent, the same as the rate of return allowed on the rate base. The companies contended that the sinking-fund interest rate should be 2 per cent, but the Court pointed out that no separately invested fund was required that the Commission's method for accumulating the amortization reserve called for no deduction thereof from the rate base, and that the companies were thus allowed to earn 6½ per cent per annum on both the amortized and unamortized portions of the base.

Although this case did not hinge directly on the question of reproduction cost *versus* prudent investment, the Court's opinion opens the door wider for federal regulatory agencies (and state agencies where state law does not prevent) to base utility rates on prudent investment, with due regard to depreciation.

HAROLD M. OLMSTED,
Public Utility Engineer-Accountant,
New York.

Medal of Honor in City Planning Goes to John D. Rockefeller, Jr.

THE Second Medal of Honor for City Planning, awarded jointly by the New York and Brooklyn Chapters of the American Institute of Architects, the New York Chapter of the American Society of Landscape Architects, and the Metropolitan Section of the American Society of Civil Engineers, was awarded last month to John D. Rockefeller, Jr.

In a presentation address, Harold M. Lewis of ASCE referred to some of the projects in the metropolitan area which Mr. Rockefeller had initiated or made possible. They are Palisades Interstate Park; Fort Tryon Park; The Cloisters; Riverside Church; International House; Rockefeller Center; and several model housing developments in Manhattan and the Bronx.

The first Medal of Honor for City Planning was awarded in December, 1939, to George McAneny, chairman of the board of Regional Plan Association, Inc.

Municipal Bond Market

The Bond Buyer for March 28 reports an improvement in recent weeks in the municipal bond market, which it credits partly to an abnormal shrinkage in the volume of new issues coming to market, but more particularly to a return of confidence in the continued tax-exempt status of state and municipal bonds now outstanding. Among recent sales of new issues as reported by *The Bond Buyer* are:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$120,000	Berks Co., Pa., General Obligation, Voting Machine	1	1-4 Ser.	.88
188,482	Wichita, Kans., Paving and Sewer	1.37	5-5 Avg.	1.32
114,000	East Cleveland, Ohio, School	1.5	5/6 O.—A.	1.42
200,000	Memphis, Tenn., Municipal Airport	1.5	1-10 Ser.	1.43
210,000	Haverhill, Mass., Relief	1.5	1-10 Ser.	1.5
300,000	Waterbury, Conn., Water Supply	1.90	14 Avg.	1.87
2,000,000	Harris Co., Texas, Road and Bridge	2.20	1-20 Ser.	2.16
3,409,000	Louisville Municipal Housing Commission, Ky.	2.25	5-17.33 O.—A.	2.23
152,000	Colonie, N. Y., Water	2.25	14 Avg.	2.24
112,000	Monroe, La., Electric System Revenue, Certificate of Indebtedness	3.25	3.5 Avg.	2.56

A Tale of Two Cities

—and what they did about HARD WATER

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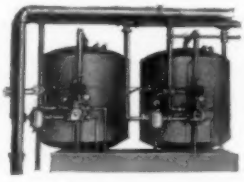
Bicknell, Ind.

This progressive city decided to do something about the 24 grain hardness of its water. So it installed a Permutit* Automatic Zeolite Water Softening plant. Now the whole city enjoys soft, iron-free water. The equipment is compact and automatic, leaving operators free for other duties.



Minneapolis, Minn.

Big cities need not put up with hard water, either. Minneapolis softens its 6-13 grain water by the Spaulding Precipitator Cold Lime Treatment. Twelve units of this new-type equipment installed at the Municipal Water Softening plant have a daily capacity of 120,000,000 gallons!

BIG CITY

These examples illustrate the wide scope of Permutit Water Conditioning treatment. Permutit makes *every* type . . . provides equipment to fit individual needs. Let Permutit work with your engineers to solve *your* water problem. Write to The Permutit Co., Dept. G3, 330 W. 42nd St., New York, N. Y. In Canada: Permutit Co., of Canada, Ltd. . . . Montreal . . . Toronto . . . Winnipeg . . . Calgary.

*Trademark Reg. U. S. Pat. Off.

PERMUTIT

WATER CONDITIONING HEADQUARTERS

The Small Incinerator Avoids Some Kinks

(*Continued from page 47*)

constructed by the drivers to accommodate the ashes which they deliver directly to the dump in a separate operation. Following this, they proceed to the upper turning plaza and weigh in on a Toledo platform scale well away from the building. This scale is provided with multiple levers operating a dial inside the building.

One shift of three men handles all demands made on the incinerator at present, and will be able to handle loads up to 20 tons per day. Before the present plant is enlarged, the crew and operating hours will be increased until such time as additional operating expense justifies additional capital expense. Operators are uniformed. This, although it is a small item, encourages the men to keep both themselves and the entire plant clean and attractive at all times.

Cost of the plant, including the 12 acres of land and the engineering and other construction expenses, was approximately $92,000. Design and supervision of construction was under the direction of Henry W. Taylor, consulting engineer of New York City. Walter A. Bates, Engineer for the town of Darien, has charge of supervision of the incinerator, among his other duties, and took an active part in the construction of the plant. A committee of nine, known as the Incinerator Committee, did the preliminary study that made possible the construction of this plant. This committee was headed by J. C. Molinar. J. Benjamin Corbin is the first selectman.

Local Government Is News

(*Continued from page 67*)

by an independent committee appointed by the Selectmen's Association. The exhibit of the best reports—for three classes of towns, below 1,000, 1,000-5,000 and over 5,000 population—is a regular feature at its annual meeting. The reports are rated on separate features, among which are comprehensiveness, clarity, readability, arrangement, and general appearance. A special rating is given for the selectmen's own report of the town's business. Cover design, the use of visual devices, revenue and expenditure statements are also specifically appraised.

Some results of the competition have been described as follows. There has been a substantial reduction in the size of most reports through eliminating unnecessary or irrelevant material. Illustrative devices—pictures, charts, and maps—have appeared more frequently and more widely. Departmental reports have been made more interpretive and comparative. More attention has been given to format and printing to make the annual report a more attractive piece of literature for the parlor table. Many towns have shown real ingenuity in presenting their records of function and activity in new ways. Some, for instance, personalize the citizen as stockholder in a going enterprise and present him the story of work done and costs involved in its different departments.

Valuable ideas are coming out of the small New England towns, ideas which are as relevant to the largest cities. Only as we make the work of Town and City Hall vivid and vital to the citizen can we expect him to respond with interest and support.

New York's Sewage-Treatment Problem

(*Continued from page 74*)

their value as evidenced by their continued use and development.

"We have been very pleased with the operation of these engines," Wellington Donaldson, Director of the Bureau of Sewage Disposal, stated recently. "Our preliminary investigations indicated that their use would be justified, and our experience with them in the various plants within the city have made us feel that our investigations were correct. We recognize their value not only as an economic source of power, but also as a method of dependable operation."

This feature of dependability as an independent source of power is very real. These plants so equipped are not faced with a complete shutdown of operations whenever electric power fails. A few years ago New York City suffered a severe storm which put power lines out of service throughout the city, and the Coney Island plant, the only one at the time having the gas engine feature, was the only one of the city's sewage-treatment plants able to continue in operation. The rest were shut down until power could be restored, creating difficulties throughout the entire treating plant.

As stated previously, the Bowery Bay plant is the newest addition to New York City's sewerage system. Construction began in 1938. Because of the proximity of the LaGuardia Airport and the World's Fair site, primary treatment was rushed to completion, so that operation began in October 1939. The balance of the construction for the activated sludge process has just recently been completed.

I. V. A. Huie is Commissioner for the Department of Public Works. R. H. Gould is Deputy Commissioner in charge of Sewage Disposal and has been responsible for many of the developments in the activated process as used in New York City. Wellington Donaldson is Director of the Bureau of Sewage Disposal. H. Liebman is Designing Engineer. C. A. Rogus was project engineer for this plant.

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will outmatch any single unit or battery of meters for capacity and accurate registration for all rates of flow.

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of "The Master Plan"

Zoning Ordinance—Estoppel

COLORADO.—Fifth Church of Christ Scientist, in Denver v. W. F. Pigg and Son, Inc., District Court of the City and County of Denver, Feb. 2, 1942. Not reported.

The statute authorizing the zoning of Denver, and the ordinance under it, were passed in 1923 and 1925. The properties in question were placed in a residential district. The Pigg Corporation acquired title to its property in 1926 and 1927, and is now seeking to build an industrial structure on it, and asking for a judgment that as to it the residential classification is arbitrary, unreasonable, confiscatory, and therefore unconstitutional.

The Church was built upon its property in 1928 at an expenditure of almost $100,000, and there is ample evidence that in so doing it relied upon the residential classification, nullification of which would result in very considerable depreciation. The Church claims that the Pigg Corporation is estopped by waiver and laches from asking for a change of its property from residential to industrial use, and this claim the Court sustains, as follows:

"It thus appears that for approximately fourteen years the owners of the property here involved had entirely acquiesced in its zoning classification while others made large investments relying thereon which would not be materially depreciated by the proposed elimination of the status quo.

"A constitutional right may be waived by acts or omissions. . . .

"'When no property right is involved and the question is purely political and administrative individuals or parties that have seen the act in operation for years, and the affairs of state carried on under it, without offering objection or making protest, will not be heard at a late date to question its validity.' . . .

"An examination of the cases will disclose that they appear to turn, not upon any loose generalization, but rather upon questions of public policy governed by the particular facts of each. Sometimes to permit the defense and sometimes to reject it would be an outrage on justice. Where, as here, the contention is, not that the act is unconstitutional per se, but only in its operation as applied to an individual under particular facts, it is clear, on reason and justice and supported by respectable authority, that he who claims injury must be reasonably diligent to protest, and that his long acquiescence upon which others have relied to their detriment bars belated action."

Residential District—Temporary Business Uses

ILLINOIS.—*Village of LaGrange v. Leitch*, Supreme Court, June 17, 1941, reported in 35 N. E. 345.—The defendant Leitch is making temporary use of a trailer on his property in a residential district, as an office for the sale of the land on which it is placed. This is not contrary to the ordinance, since it is merely a temporary use rather than an infringement on the permanent uses of the land to which the district is devoted.

Non-Conforming Use

IOWA.—*Mojimsey* v. *Board of Adjustment of City of Des Moines*, Supreme Court, not reported.

The plaintiff owns and occupies a public garage in a residential zoning district in the City of Des Moines. The zoning ordinance of the city was passed by the council in 1926, but notice of the time and place of public hearing with relation to it was not given as required by the state enabling acts, and it was without force until validated by an act of legislature passed in April 1939. Section 2 of this act provides that the act shall not apply to any use to which any real estate was lawfully devoted prior to the passage of this validating act, and that such use may continue.

In October 1939, the plaintiff filed an application to alter and remodel his garage, slightly enlarging it, but made no provision for yard area as required by the ordinance of 1926.

This application is denied and such denial held to be proper and is sustained. The plaintiff claims that his right to continue the "use" of his building as a non-conforming garage is unhampered by the enforcement of any section or provision of the zoning ordinance; in other words that being free to continue the use of this building under the terms of the legalizing act as pertaining to use, he is thereby freed from the enforcement of any other provision of the ordinance. The Court rules that this is an unwarranted broadening of the new use, as employed in this connection. The exception contained in the validating act relates to "uses" only and does not limit the regulation of height, area, construction, and reconstruction of buildings, and of yard areas. In zoning, the impositions made are applicable to all property regardless of the use to which it is devoted. The validating statute excepting non-conforming uses does not include area, height of buildings, or yard areas on which non-conforming areas are established. The word "use" as employed in zoning has a distinct meaning and is distinguished from the regulations of height, construction, etc. The legislature did not intend, through the exemption in the validating act, to place plaintiff's property in a more favorable position than other property in the district except for this continuation of pre-existing use.

Residential District—Earth Products

NEW YORK.—*People* v. *Calvai Corporation*, Court of Appeals, July 29, 1941, reported, 36 N. E. (2d) 644, 285 N. Y. 419.

The defendant is the owner of land in a residential zoning district in the town of Hempstead. It is engaged in the business of excavating sand on its land for sale. The zoning ordinance of the town forbids the conduct of business in this district. The land is situated in an undeveloped part of the town. It would not appear that such excavation causes any serious present substantial injury to the neighborhood. It may be argued that a general and complete prohibition of such use of property would be unreasonable. That question is not decided in this case.

The zoning ordinance of the town provides for a Board of Appeals, with authority to issue temporary and conditional permits for uses in contravention of the terms of the ordinance. Refusal to grant such a permit in a proper case, if not reversable by the courts, might result in unlawful deprivation of defendant's property. There has been no such deprivation until there has been application and unreasonable refusal. There is nothing in the record of this case to show that this has occurred.

EDITOR'S NOTE. This case may be distinguished from that in which the claim of practical difficulty and unnecessary hardship is raised. In that case the applicant contends that the ordinance, as to him, is unreasonable and void and, being void, he may at once apply to the courts claiming unconstitutionality and is not obliged to go first to the Board of Appeals. In the present case the ordinance is valid and its provisions including resort to the Board of Appeals, must be followed.

Zoning Amendment—Neighboring Property—Vested Interest—Single Lot

WISCONSIN.—*Eggebeen* v. *Sonnenburg*, Supreme Court, reported in 1 N. W. 2d, 84.

The lot in question was in a one-family residential zoning district, and was entirely surrounded by one-family houses in the district. The ordinance was amended to make the lot an appartment house district. The lot was not suitable for the construction of a one-family house upon it, owing to the excessive foundation costs.

This amendment is valid. The surrounding property owners had no vested interest in the continuance of the ordinance as it was. The amendment was not unreasonable. The fact that it created a single lot apartment house district did not under the circumstances make it invalid.

EDITOR'S NOTE: The courts have often, but not invariably, held single lot districts invalid; see the California case of Spinelli v. County of San Diego in our Dec., 1941, Notes.

HIGH DELIVERY CAPACITY—Williams and Hazen flow-coefficient is C=140 for J-M Transite Pipe.

CANNOT TUBERCULATE—because Transite is made of asbestos and cement, non-metallic.

HIGHLY CORROSION-RESISTANT—assuring long life and low upkeep.

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JM PRODUCTS

Johns-Manville TRANSITE PIPE

AN ASBESTOS PRODUCT

for efficient, economical water and sewer lines

Municipal Law Notes and Decisions

Prepared by National Institute of Municipal Law Officers, Washington, D. C.
Charles S. Rhyne, Executive Director

Emergency Suspension of Building, Electrical and Plumbing Ordinances

Model Ordinance for Cities Necessitated by Shortages Created by the War Program

WAR program requirements have created a shortage of iron, steel, brass, bronze, and other critical materials. This shortage will mean that cities must suspend present requirements of their building, electrical, and plumbing codes and ordinances, or that construction must cease in all cases where the materials required by these codes and ordinances are made unavailable by necessary limitations created by the war program.

Anticipating this problem, the National Institute of Municipal Law Officers and the American Municipal Association made a study of the practical and legal phases of the problems created by this suspension in September 1941, and at the request of the Federal Defense Housing Coordinator, a memorandum was presented outlining the ways by which cities could meet the situation. This memorandum (see digest of its contents in "Municipalities and the Law in Action in 1941," pages 83 to 85) recommended that in order to meet a part of this problem by specific recommendations designed to save critical metals, the Federal Plumbing Reference Manual, which has been in use on Federal Housing Projects since November 1940, be redrafted as a city ordinance in order that cities might adopt it or use it as a standard for action of building, electrical, and plumbing officials during the emergency period while the materials required by existing codes and ordinances were unavailable. This suggestion was adopted, and in February 1942, the new Federal pamphlet was published entitled, "Emergency Plumbing Standards for Defense Housing."

The War Production Board has revised its defense housing critical list of materials, limiting the kind, use, and quantity of eligible materials and products for which it would grant priority assistance in defense housing areas. This revision went into effect on February 24, 1942. On February 11, 1942, the War Production Board had issued Limitations Order No. L—42, authorizing the issuance of schedules for simplification of lines and elimination of non-essential types, sizes, forms, and specifications for plumbing and heating. All priority assistance is dependent upon compliance with the new schedules, and the new schedules are expected to conform to the "Emergency Plumbing Standards for Defense Housing," just referred to. With the certainty of further restrictions on building and electrical materials, municipal officials should begin to prepare now to meet the problems which have already arisen in most cities, and which are bound to arise where they have not already done so.

Cities may refuse to allow substitution of available materials for the materials required by existing ordinances, but the effect of this action will be to end all construction work. If city officials instruct building, electrical, and plumbing inspectors to permit the use of substitute materials without changing existing ordinances, they will be authorizing a violation of law which will subject the violator to the civil and criminal penalties imposed by law, as city officials cannot condone or afford immunity for the violation of city ordinances governing building permits. *Marcus* v. *Village of Mamaroneck*, 283 N. Y. 325, 28 N. E. (2d) 856 (1941), "Municipalities and the Law in Action in 1941," page 456.

Procedure for Authorizing Substitute Materials

The repeal of all existing plumbing ordinances and substitution of the "Emergency Plumbing Standards for Defense Housing," is impracticable because of publication requirements and the fact that these standards may of necessity be changed whenever the War Program makes even more rigid restrictions necessary. Also, such adoption would be only one-third of the job, as electrical and building codes must also be changed. The proper solution to the problem appears to be adoption of an ordinance providing that for the duration of the emergency created by the war, building, electrical, and plumbing officials may allow the use of such substitute materials, for those presently required, as are available, so long as the public health, safety, and general welfare are adequately protected. The proper city building, electrical, or plumbing official can then use the "Emergency Plumbing Standards for Defense Housing," or any other standards found to be within the standards set up in Section One of the Model Ordinance set forth herein.

It is granted that such a general standard vests very broad administrative powers in city building, electrical, and plumbing officials, but it is the only reasonable method of meeting an emergency problem, and the courts should be reluctant to hold this method invalid. See report No. 80 of the National Institute of Municipal Law Officers, entitled "Blackouts and Air Raids — Model Ordinance Annotated," pages 7 and 8, and the National Institute's report No. 75, entitled "Automobile Trailer and Tourist Camps—Legal and Administrative Problems of Municipal Regulation with an Annotated Model Ordinance," pages 26 through 28, wherein the legal authorities upholding such general standards for administrative action are collected. It should also be pointed out that if at any time a City Council does not like the way such a standard is working in actual practice, the ordinance can be repealed.

Such a standard allows the use of a very short ordinance, thereby avoiding expensive publication costs. The legal objections to incorporation by reference of standards such as those found in the "Emergency Plumbing Standards for Defense Housing," are also avoided.

In the Model Ordinance set forth the term "ordinance" is used throughout rather than "code" because all city codes are in fact ordinances, so the term "ordinance" covers everything. Lack of space prevents a complete annotation of the reasons for each section of the Model Ordinance, but it is believed that in general its provisions are self-explanatory.

Model Ordinance

AUTHORIZING EMERGENCY SUSPENSION OF CITY BUILDING, ELECTRICAL, AND PLUMBING ORDINANCES, TO MEET SHORTAGES CREATED BY THE WAR PROGRAM

Prepared by the

National Institute of Municipal Law Officers

730 Jackson Place, N. W.
Washington, D. C.

An Ordinance Authorizing Emergency Suspension of All Building, Electrical, and Plumbing Ordinances, Authorizing the Use of Substitute Materials During the Period of National Emergency, and Declaring an Emergency.

Whereas, a state of war exists between the United States of America and Germany, Japan, and Italy and a National Emergency exists; and

Whereas, War program requirements have created a shortage of iron, steel, brass, bronze, and other critical materials for war and private use; and

Whereas, necessary restrictions on the use of these materials have been and will be imposed by the Federal Government in such a way as to make it impossible to secure or use all the types, sizes, or forms of materials or the specifications for such materials now required by the building, electrical, or plumbing ordinances of this city; and

Whereas, it is imperative that construction, reconstruction, alteration, and repair of buildings continue during the National Emergency and the Federal Government has suggested that city building, electrical, and plumbing ordinances be suspended during this Emergency so as to permit the substitution of available materials, installations or methods of construction while at the same time fully protecting the public health, safety, and general welfare; now therefore,

Be it ordained by the Council of the city of ————————:

A week ago they would have LAUGHED!

That night they hung on every word!

It was 8 p.m. in the town hall. A great change had come over these townspeople since December 7, 1941. As their local fire chief spoke, they listened with undivided attention—learning about incendiary bombs and what to do in an emergency — *just in case . . .* !

Emergency! . . . that's what hydrants are for! That's why Ludlow Hydrants, backed by half a century of dependability, provide *quick water* with least possible shock; proper shut-off *without water hammer; correct drainage;* and *easy inspection and servicing.*

Consider Ludlow Hydrants for that new Defense Area! Catalog is yours for the asking.

THE LUDLOW VALVE MFG. CO., INC.
TROY, NEW YORK

Ludlow Construction. Self-releasing 30° angle wedges and free-floating gates, self-adjusting to seats, afford smooth, trouble-free performance, long service. Opening and closing of hydrant automatically opens and closes drain, located at lowest point. Clogging is prevented. Gate is wedge-locked, when closed, to prevent flooding. All working parts may be lifted through top of hydrant for easy inspection. Top and bottom bodies bolted together at ground line.

LUDLOW HYDRANTS

During April we hope you will remember to mention THE AMERICAN CITY.

Section 1. Suspension of Code and Ordinance Provisions During National Emergency. For the period of the National Emergency created by the war between the United States of America and Germany, Japan, and Italy the ———— [name of city official who issues building permits] may grant permits allowing the substitution of specified building, electrical, and plumbing materials, and methods of construction for the materials and methods now required by any ordinance of the City of ————, whenever he shall find the following facts to exist:

(1) The materials required by said ordinance are not available, or cannot be obtained within a reasonable time, or cannot be obtained except at a prohibitive cost because of the National Emergency, and

(2) The use of such substitute materials or methods will not materially increase the fire, health, or safety hazard, nor materially lessen the structural stability of the building or structure for which said substitute is to be used.

Section 2. Rules and Regulations. The ———— [name of city official who issues construction permits] may prescribe rules and regulations governing applications for permits to use substitute materials and methods under this Ordinance, and he may require the furnishing of any information reasonably necessary to enable him to determine whether such applications come within the terms of this Ordinance.

Section 3. Findings to Be in Writing and Filed. In each case where the ———— [name of city official who issues construction permits] allows the use of substitute materials he shall file as a part of the city's records on this permit a written statement of the facts upon which he based his determination that the requirements of Section 1 of this ordinance would be complied with by the granting of the permit.

Section 4. Separability of Provisions. It is the intention of the City Council that each separate provision of this Ordinance shall be deemed independent of all other provisions herein, and it is further the intention of the City Council that if any provision of this Ordinance be declared to be invalid, all other provisions thereof shall remain valid and enforceable.

Section 5. Finding of Emergency. This ordinance is passed as an emergency measure, and the Council does by the vote by which this ordinance is passed, hereby declare that a National Emergency exists, which makes it imperative that this ordinance shall become effective forthwith, the nature of said emergency being as follows: The War Program has created, and will continue to create said shortages of materials required by the ordinances of the City of ————, for the construction, reconstruction, alteration, or repair of buildings and structures making it impossible to protect the public health, safety, and general welfare by a continuance of construction, reconstruction, alteration, or repair of buildings and structures under the terms of existing ordinances so that unless this ordinance is immediately effective, all construction work must cease, and it is therefore necessary in the furtherance of the public health, safety, and welfare of the residents of this city that this ordinance be effective immediately.

Adopted this ———— day of ————, 194—.

NIMLO Publication

Selected Research Reports.—Report No. 81, National Institute of Municipal Law Officers, 730 Jackson Place, Washington, D. C. 1942. 14 *pp.* $2.00.

This bulletin contains more research reports on timely subjects of general interest, prepared originally as answers to inquiries on what cities have done or are now considering on particular ordinances or legal problems. It covers aspects of: beauty shops; contractors; curbs; fairs—carnivals; garbage; housing; ice; municipal officers; noise; parking meters; peddlers; railroads; sidewalk injuries; streets; trees; vaults.

Organized Insurance Based on Current Values

By Loreme R. Beatie
City Clerk, Alameda, Calif.

IT WAS a little over ten years ago that The Home Insurance Co. was authorized by the City Council of Alameda, Calif., to make a complete survey of the city's insurance policies and real needs. The report that was made included an analysis of existing insurance and of the actual properties, with estimates of values, recommendation of proper rates, and policy forms.

There were then 125 fire policies and one explosion policy totaling $297,000 in insurance and averaging $2,196 per fire policy. This insurance was placed with 40 different agencies and was written for from one to three years. Coinsurance was used on certain eligible items, but not on others. There were glaring cases of non-concurrency in the forms covering the same properties. In instances, different percentages of coinsurance had been applied to the same properties.

Properties were overinsured, underinsured, or not insured at all. There were many cases of non-compliance with coinsurance conditions with respect to value and amount of insurance carried. In other cases, where coinsurance was not used, there was more than sufficient insurance to comply with a 90 per cent coinsurance clause—which would have reduced the rate. In the matter of rates, many risks were improperly rated, due to changes in construction, occupancy, protection, and exposure. These changes had not been brought to the attention of the Board of Fire Underwriters of the Pacific Coast and no application for rate revision had been filed.

It was a comprehensive study, embracing casualty, general, and automobile public liability and property damage, automobile fire and transportation, messenger robbery and hold-up, interior robbery, safe burglary, forgery bond, liability bond for the city's numerous employees handling city funds, and both personal and scheduled bonds, the latter including city bus drivers and others connected with Alameda Bus Lines and various positions in the Department of Electricity. The city of Alameda, of course, owns and operates the electric distributing system as well as the water supply.

The City Council accepted the report and put the plan into effect. The three-year General City Schedule originally recommended has been converted to a five-year term with saving in premium over a given period and a considerably lower annual budget cost—one-fifth of the total insurance expires each year. At present there are three schedules, necessary for accounting reasons, since each of the divisions of the city government is required to pay its own insurance premiums. These schedules are known as

1. General City Schedule—72 items
2. Public Utilities Schedule — 12 items
3. Library Schedule—6 items.

There are now a total of 18 policies, all carried by The Home Fleet, with total insurance of $830,925.

Rechecks When Needed

Periodically the engineering department of the Home Insurance Co. refigures values by applying comparative cost factors and additional depreciation, together with corrections for additions and deletions. Through this service the values and amounts of insurance are made to coincide with current conditions.

City Manager Appointments

B. J. McDaniel, acting city manager since the resignation of E. V. Spence, was appointed city manager of Big Spring, Texas, on February 24.

J. P. Ramsey, consulting engineer of Hartford, will become town manager of Bloomfield, Connecticut, on April 1.

Byron J. Rockwood, city manager of Grosse Pointe Park, Michigan, since June, 1940, will become the first city manager of Hazel Park, Michigan, on April 1.

Earl Weeber has been appointed acting city manager of East Grand Rapids, Michigan, to serve while L. Henry Gork is on leave for army duty. Mr. Weeber is a member of a consulting engineering firm in Grand Rapids.

Charles A. Owen has been appointed acting manager of South Portland, Maine.

Clarence E. Ridley,
Executive Director, International City Managers' Association.

Here's ONE Defense Bottleneck ... That Can Be Removed Quickly !!!

Water lines are the Life lines of a Nation at war! Fire Safety, Health, Production—all depend upon an ample, uninterrupted, dependable supply of water.

Now, when your water lines are taxed to the utmost to supply that extra war demand made by new and enlarged factories, cantonments, camps, etc., you can't afford to let dirty water mains be the bottleneck that defeats "all out" war effort.

FLEXIBLE will clear those mains for you in a jiffy by their exclusive time and money saving methods developed during more than ten years of specialized experience.

Write for "Don't Defeat Defense." It contains some "brass tacks" facts about water main cleaning that every city official should know. Remember Singapore! Her water supply was stopped!

FLEXIBLE UNDERGROUND PIPE-CLEANING CO.

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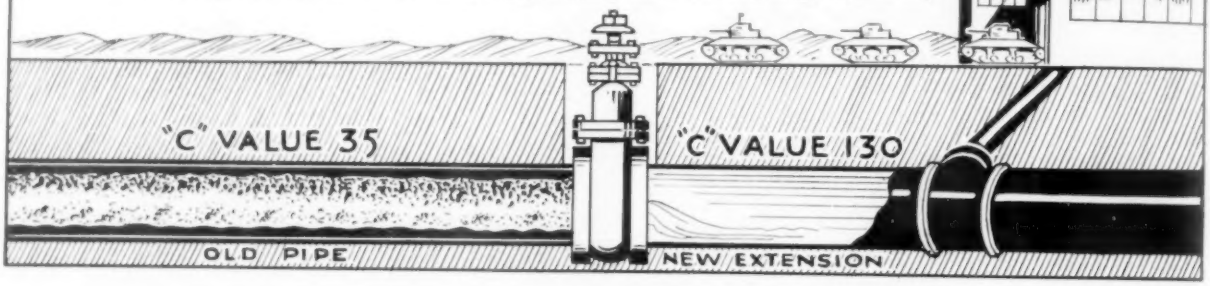

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Stewart Non-Climable Chain Link Wire Fences provide continuous, unfailing protection for reservoirs, waterworks and sewage disposal plants against unwarranted trespass. Don't delay . . . surround your property with a Stewart Fence NOW! Wire, write or phone Hemlock 1985, or call in the Stewart representative located in your vicinity. Sales and erection offices in all principal cities.

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Stewart IRON and WIRE FENCES

NEW! THE SEC-DAR CATCH-BASIN CLEANER

(Patented)

Do away with tedious and expensive methods of cleaning catch-basins and sumps. Ideal for garages, filling stations and industrial plants, as well as for roads and streets.
A part turn of a SEC-DAR fills the buckets, which handle sludge too heavy to pump or too thin to remove with scoops or spoons. The hinge action of the buckets permits withdrawal of full loads each time, even through several feet of water.
Overall length, 5 ft. Threaded connection for using any length of ½-inch pipe extension.

Two sizes: largest horizontal dimension, 15" and 11½".

Some State Dealerships Open. Write

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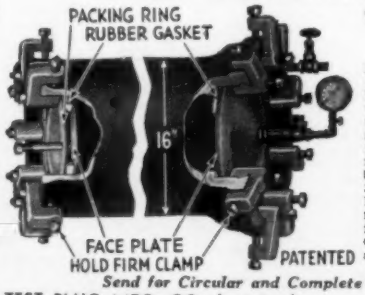
"HOLD FIRM"

A NEW TEST PLUG

For Testing Mains Conveying



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For testing cast iron, steel, transite, soil and concrete pipe lines, without the necessity of valves; test pipe as you lay them; eliminate open trench and hazards; special for testing reclaimed pipe, valves and fittings. Installed by any unskilled laborer; withstands 300 lbs. hydrostatic pressure, light in weight; same clamps fit many sizes of pipe. Made in all sizes. Used by the City of Chicago, contractors and municipalities.

Send for Circular and Complete Information

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Municipal and Civic Publications

Please mention THE AMERICAN CITY when ordering

Motor Equipment and Priorities

Conserving Municipal Motor Equipment and Tires.—Municipal Finance Officers Association, 1313 E. 60th St., Chicago, Ill. 1942. 4 *pp., photo offset.* 15c.

Report on how United States cities over 100,000 population are handling motor equipment and tire shortages, with specific examples and suggestions for action.

Water Pollution

The River Speaks.—Publication No. 65, Region One, National Resources Planning Board, 2100 Federal Building, Boston, Mass. 1942. 44 *pp., mimeo.*

Increased stream pollution resulting from defense activities has made the water-pollution problem another subject to receive increasing current attention, with probable future beneficial results. This publication gives a non-technical discussion of the problem, of practical steps to correct pollution, and presents a sample pollution-abatement plan.

National and Civilian Defense

Selected Bibliography of Bibliographies on Subjects Related to National Defense.—By Clarence P. Dunbar, Research Associate, Bureau of Educational Research, Louisiana State University, University Station, Baton Rouge, La. 1942. 29 *pp., photo offset. Free.*

A list of 212 bibliographies on 64 subjects in the field of national defense.

Non-Government Sources of Information on National Defense.—Education and National Defense Series Pamphlet No. 3 (Preliminary Edition), Federal Security Agency, U. S. Office of Education, Washington, D. C. 1942. *xi* + 44 *pp., offset.*

Publications on defense available from about 100 non-government, non-profit agencies, arranged under 46 headings.

Selected Current References to Official Publications on Civilian Defense, and Supplement 1 to this Bibliography.—Compiled by Document Department, Northwestern University Library, Evanston, Ill. 1942. 18 *pp.*, 6 *pp., respectively, mimeo.*

Lists of publications on civilian defense, arranged according to subject, and with brief descriptions.

Compiled in the Library of the Departments of Landscape Architecture and Regional Planning, Harvard University, Cambridge, Mass., by Katherine McNamara, Librarian:

Some 1941 *References on Rehabilitation of Blighted Areas.* 1941. 4 *pp., mimeo.*

Some Recent References on Camouflage. 1941. 3 *pp. mimeo.*

A List of References to the Planning of Evacuation Camps. 1942. 3 *pp., mimeo.*

Lists of publications on three subjects of current interest, annotated in most cases.

Municipal Legal Experience

Municipalities and the Law in Action in 1941.—*Edited by Charles S. Rhyne, Executive Director, National Institute of Municipal Law Officers, 730 Jackson Place, Washington, D. C.* 1942. 693 *pp.* $7.50.

Proceedings of the 1941 annual meeting of the Institute, constituting a summary of the legal experience of cities on every important legal problem which arose during 1941, with digests of the important court decisions of the year. Of the 12 sections of the volume, greatest space is given to important legal considerations in connection with national defense and municipal employee problems—particularly involving labor-union contracts.

Camouflage for Civilian Defense

Protective Concealment—Civilian Defense.—Prepared by the War Department. Published by the U. S. Office of Civilian Defense, Washington, D. C. 1942. *iv* + 68 *pp.*

Practical measures for the concealment of important civilian installations and equipment from aerial observation. The bulletin analyzes the place of visibility in bombing attack and the factors which affect it; and discusses characteristic problems, the elements of technique, and procedure and organization in concealment and camouflage. Appendices give data on bombing methods, artificial smoke and fog, treatment to reduce visibility of concrete surfaces, and tables showing specifications and uses for paints, fabrics, and other items suitable for camouflage.

Preparation for Air Raids

Air Raids—What You Must Know, What You Must Do.—The British Library of Information, 30 Rockefeller Plaza, New York. Revised Edition, 1941. 64 *pp.*

Preparation for air raids, according to the introductory chapter of this handbook, "means pondering quite a number of very unsavory facts. Information about air raids does not make light or pleasant reading but it is necessary information." Here is practical, to-the-point information direct from the British civilian front on how to meet the exigencies of an air raid. It covers incendiary bombs and fire precautions; high explosives; shelters; war gases; first aid; and lighting restrictions.

Aircraft Observation Posts

Aircraft Warning Service.—New York State Council of Defense, State Capitol, Albany, N. Y. 1942. 8 *pp.*

Detailed instructions for local defense councils, for registering and selecting volunteers for aircraft warning service, and for manning outside observation posts.

Speeding War Production

Producing for War.—Research Institute of America, 292 Madison Ave., New York. 1942. 115 *pp.* $1.00.

Practical, to-the-point suggestions for the businessman on how to get government business, and how to speed up and expand war production, including discussions of such problems as conversion of plants to war production, handling priority and price procedure, getting, training, and speeding up labor, etc.

Libraries and the War

National Defense and the Public Library.—By Nell A. Unger, Katherine Shorey, and Others. American Library Association, 520 N. Michigan Ave., Chicago, Ill. 1942. 48 *pp.* 35c.

Brief statements on the defense and war activities of four individual libraries, with an outline of suggested activities for wartime library service.

Municipal Bookkeeping

Municipal Finance.—Edited by H. T. Scovill, Extension Division, University of Illinois, Urbana, Ill. 1941. 51 *pp., mimeo.*

Non-technical text for a practical course in municipal bookkeeping for the cities and villages of Illinois, with particular reference to cities of 5,000 and under. The syllabus was prepared originally for use in a training course for municipal finance officers sponsored by the University of Illinois, in cooperation with state and national finance and other organizations.

Post-War Planning

Economic Consequences of the Second World War.—By Lewis L. Lorwin. Random House, New York. 1941. *xvii* + 510 *pp.* $3.00 *from* THE AMERICAN CITY.

A penetrating survey and analysis of the totalitarian and democratic social-economic ideas underlying the present war, and the implications of these two sets of ideas for the post-war world—a statement of what the American people are fighting for and against, and the problems to be faced at the end of the war. Part One outlines the background of Nazi ideology and policy which determine war policies and post-war aims; Part Two sketches the development of democratic ideas and institutions; Part Three analyzes the Nazi-Axis plans for a "new order"; Part Four examines democratic post-war programs; and Part Five presents a "World New Deal" which, in the author's opinion, offers a starting point of practical action.

War Financing Symposium

Financing the War.—By Robert Warren, Homer Jones, Frank E. Seidman, Denzel C. Cline, Alzada Comstock, Simeon E. Leland, Harley L. Lutz, Albert Gailord Hart, Charles Cortez Abbott, E. Gordon Keith, Walter W. Heller, Charles L. Kades, Chester B. Pond, Charles P. White, Brinley Thomas, William H. Wynne, Benjamin B. Wallace, Grayson Kirk. Symposium conducted by the Tax Institute, Dec. 1-2, 1941. Philadelphia. Tax Institute, Philadelphia, Pa. 1942. *ix* + 357 *pp.* $2.50.

Eighteen authoritative chapters by as many experts, on six principal phases of war financing: Surveying Federal Finances; Excess Profits Taxation; Control of Inflation through Revenue Policies; Adjustments in Easing Impact of Defense Taxes; Defense and War Revenues in Other Countries; and Tariffs and International Relations.

Defense Housing Standards

Emergency Plumbing Standards for Defense Housing.—Division of Defense Housing Coordination, Washington, D. C. 1942. 30 *pp.*

Developed in collaboration with national plumbing organizations, standards for plumbing installation drawn up with a view to the greatest possible conservation of metals and building materials consistent with public health and safety.

Municipal Adoption of the Proposed Federal Emergency Plumbing Standards for Defense Housing.—Report No. 150, The American Municipal Association, 1313 E. 60th St., Chicago, Ill. 1942. 20 *pp., mimeo.* $1.00.

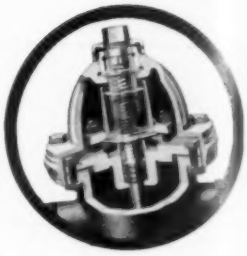
An overall picture of possible methods by which the standards presented above can be given local application, with a discussion of basic legal problems and principles involved.

Urban Redevelopment

Blighted Areas and the Defense Program.—Sponsored by the Citizens' Planning and Housing Association of Baltimore and the Curriculum in Fine Arts of Johns Hopkins University, in cooperation with the Commission on City Plan, and the Maryland State Planning Commission. Apply to Maryland State Planning Commission, Latrobe Hall, The Johns Hopkins University, Baltimore, Md. 1941. *iv* + 100 *pp., mimeo.* 25c.

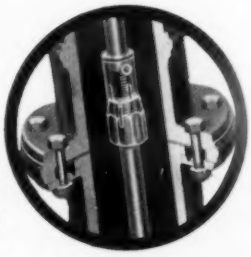
Proceedings of a seminar held by the Baltimore Citizens' Planning and Housing Association, containing six talks by experts on phases of blight and rebuilding, and their relation to the defense program. The Association's long-range housing program which developed out of the seminar is included.

ABOVE THE GROUND
WHERE YOU CAN SEE IT!



This handsomely designed hydrant is really as rugged as it looks. Inside the bonnet is a unique self-oiling mechanism that keeps all working parts constantly immersed in a bath of oil. Nothing can rust. Packing cannot dry out. Further protected by the bronze all-weather cap, this hydrant will open and close instantly, easily, ANYTIME,—giving a full, free flow of water.

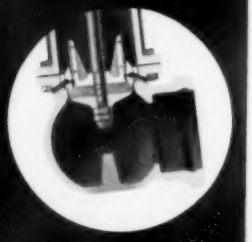
NEAR THE GROUND
WHERE YOU NEED IT!



Here is the ingenious SAFETY-FLANGE which cuts the cost of collisions. When the hydrant is struck a heavy blow, the SAFETY-FLANGE and stem part and the upper barrel section falls undamaged to the ground without flooding the street—even if the hydrant is open at the time. One man with a few simple parts can make this hydrant good as new in half an hour. There is NO DIGGING or WATER SHUT-OFF.

BELOW THE GROUND
WHERE YOU CAN'T SEE IT!

See this precision-built compression type main valve. The full-faced taper design prevents the valve from pulling through the seat ring opening, and positively shuts off the water when closed. The bronze to bronze contact in the main bushing and seat ring make for easy removal of the entire assembly at any time. There are no springs, toggles, plungers, or complicated mechanisms. The bronze-bushed double drain valves are positive in action and entirely drain the barrel at all times. This hydrant CANNOT freeze under any condition . . . MUELLER hydrants offer real ECONOMY to any community. Investigate them!



These are the "high spots". For complete story ask any Mueller Service Man or write Dept. W-42.

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Administration Case Histories

Case Reports in Public Administration—Collected and Edited by the Committee on Public Administration of the Social Science Research Council. Published by Public Administration Service, 1313 E. 60th St., Chicago, Ill. 1941. Reports 41-60, about 2-4 pp. each. $2.00 (or $5.60 for Reports 1-60).

Twenty more case histories of the solutions of individual problems in public management have been published here in a loose-leaf binder, making a total of 2 volumes of 60 cases. In each case, pertinent facts, possible solutions, decisions, and results are outlined. Examples of cases of interest to THE AMERICAN CITY readers are: Municipal Purchasing from Local Merchants; Use of Purchase Agency Facilities for Departmental Purchase Records; Use of Dictating Machines to Equalize the Pressure of Work for a Clerical Staff; Organization of a City Planning Department for Current and Long-Term Activities; and the Control of the Use of City-Owned Motor Equipment.

Municipal Introspection

Experiments in Methods of Municipal Analysis.—By Morris B. Lambie. Bureau for Research in Municipal Government, Harvard Graduate School of Public Administration, Cambridge, Mass. 1941. vii+310 pp., photo offset.

Report of an experiment to determine methods of analyzing and reporting differences in municipalities, particularly differences in their fiscal stamina and ability to adjust to change. Selected for their availability, data are presented on population, assessed valuation, taxes, welfare and relief, school costs, debt, and expenditures for the 351 cities and towns in Massachusetts. From this analysis, the final chapter classifies the municipalities, and points out various trends.

Community Self-Appraisal

Let-Us-Look at the Village of Patchogue, N. Y.—By John M. Muddeman, Planning Consultant, Village of Patchogue Planning Board, Patchogue, N. Y. 1942. 17 pp., mimeo.

A brief review of the accomplishments to date of the Village of Patchogue Planning Board, and an outline for community appraisal as the basic first step in planned industrial development.

Public Administration Libraries

A Library Classification for Public Administration Materials.—By Sophia Hall Glidden, with the Assistance of Dorothy Marchus. Public Administration Service, 1313 E. 60th St., Chicago, Ill., and the American Library Association, Chicago. Apply to the former. 1942. xv+512 pp. 6.00.

A system of classification for library material on public administration, based on "A System of Classification for Political Science Collections" published by the University of Minnesota Press in 1928, but taking account of the expansion since that time of such branches of public administration as welfare, housing and planning. The volume contains the classification outline and a detailed index with cross references to the classification.

Recreation Planning Survey

Parks and Recreational Areas of South Carolina.—Prepared by South Carolina State Planning Board. Published by State Council of Defense, Columbia, S. C. 1942. 86 pp.

Another of the over-all surveys and appraisals of state park and recreational areas to add to the growing body of those already prepared under the act of Congress which authorized the National Park Service to cooperate with the states in developing park, parkway, and recreational area plans. Having particular current interest because of the several military concentrations now in South Carolina, this report examines federal and state recreational resources and makes recommendations for improvements.

Government Finance Textbook

American Public Finance.—By William J. Shultz, LL.B., Ph.D., School of Business and Civic Administration, College of the City of New York. Prentice-Hall, Inc., New York. Third Edition, 1942. xxiii + 874 pp. $6.00 from THE AMERICAN CITY.

Textbook revised to include new developments in the field of public finance, particularly in those spheres of the field which have assumed outstanding importance because of the war. Five main parts cover: Governmental Expenditure; Principles of Taxation; American Taxes and Other Current Revenues; Governmental Borrowing and Indebtedness; and Federal-State-Local Fiscal Interrelationships. Appendices contain sample administrative and tax-report forms.

Budget Manual

Municipal Budget Procedure and Budgetary Accounting.—Accounting Publication No. 9, Municipal Finance Officers Association, 1313 E. 60th St., Chicago, Ill. 1942. vii + 100 pp. $1.00.

A practical, compact handbook on budgeting for municipalities, intended primarily for cities of 25,000 population and over, but adaptable to smaller units.

Citizens and the Budget

Your Municipal Budget.—Pennsylvania Economy League, Inc., 600 N. Second St., Harrisburg, Pa. 1942. 20 pp.

For the layman, an explanation of Pennsylvania's budget laws, which provide for citizen inspection of the budget before adoption; and an analysis of the purpose and contents of a local budget, with questions to be considered in studying budget proposals.

Tax Laws

Revenue Laws of California (Annotated), 1941.—Compiled by Dixwell L. Pierce, Secretary, State Board of Equalization, Sacramento, Calif. 1941. 1,042 pp.

A compilation of California tax laws, including political and other code provisions, general law provisions, revenue acts, and federal statutes relating to state taxation. Contained also in the volume are an outline of the state's tax system, the tax calendar, constitutional provisions for taxation, and the 1939 revenue and taxation code.

Chattanooga Housing Conditions

Survey of Low-Rent Housing Needs of Chattanooga, Tenn.—Published by Chattanooga Housing Authority as a Report on Work Project No. 3973 Conducted under Auspices of the Work Projects Administration. 1941. 66 pp., photo offset.

A survey and analysis of substandard houses in Chattanooga, Tennessee, and of the families living in them, to serve as a basis for planning a long-term low-rent housing program.

Federal Government

United States Government Manual, Spring, 1942.—U. S. Information Service, Office of Government Reports, Washington, D. C. xxix + 698 pp. 75c.

Latest revised edition of this manual, giving data on the organization and personnel of official and quasi-official agencies and departments of the Federal Government, with organization charts and a list of representative publications of the various departments.

Legal Decision Periodical

Municipal Law Court Decisions.—National Institute of Municipal Law Officers, 730 Jackson Place, N. W., Washington, D. C. Charles S. Rhyne, Editor. Vol. 1, Nos. 1 & 2; Jan., Feb., 1942. 10 pp.

First issue of a new monthly periodical, published as a service to members of the Institute, and containing brief digests of all court decisions involving municipalities reported during the month.

Integrating Metropolitan Areas

Metropolitan Government.—By Victor Jones, Illinois Institute of Technology. The University of Chicago Press, Chicago, Ill. 1942. xxiv + 364 pp. $4.00 from THE AMERICAN CITY.

A thorough broad analysis of the complicated and increasingly important factors involved in the adjustments of growing metropolitan communities to outgrown forms of organization and administration, and of the various solutions to the problem that have been proposed or tried. Structural, fiscal, legal, and political aspects of the subject are examined in theory and as they apply to specific instances.

Long-Range Programming

Report of the Mayor's Capital Improvement Program Committee.—Prepared by the Committee, Detroit, Mich. 1942. 82 pp., mimeo.

A capital improvement program for the six-year period from 1942 to 1948, prepared from lists of needed improvements presented by all municipal agencies in Detroit, with an additional list of reserve projects to be undertaken if funds become available or for future programs.

Shoreline Master Plans

Master Plan of Shoreline Development.—Department of City Planning, Los Angeles, Calif. 1941. c+33 pp., mimeo.

Master Plan of Shoreline Development.—Orange County Planning Commission, Orange County, Calif. 1941. 85 pp.

The first of these reports presents the shoreline problem of Los Angeles, and recommends a comprehensive long-range plan for nine different uses for the city's waterfront. The second, similar in approach, outlines the need for bathing beaches and the problem of beach-erosion, and sets forth a master plan for shoreline development and a program for acquisition and development of land.

A Planning Exhibit

Virginia Plans for Defense—and After.—Virginia Museum of Fine Arts, Richmond, Va. Apply to Virginia State Planning Board, Richmond, Va. 1942. 19 pp.

Guide to an exhibit given by the Virginia State Planning Board from January 7 to February 2, showing planning's place in war and post-war periods.

Billboard Elimination

Pennsylvania Tries Cooperation to Solve the Roadside Problem.—By Elizabeth B. and Walter L. Lawton of the National Roadside Council, 119 E. 19th St., New York. 1942. 4 pp.

Results of a careful study of how much has actually been accomplished in eliminating billboards in Pennsylvania by the Cooperative Roadside Improvement Committee, since its inception.

Canadian National Parks

Received from the National Parks Bureau, Department of Mines and Resources, Ottawa, Canada:

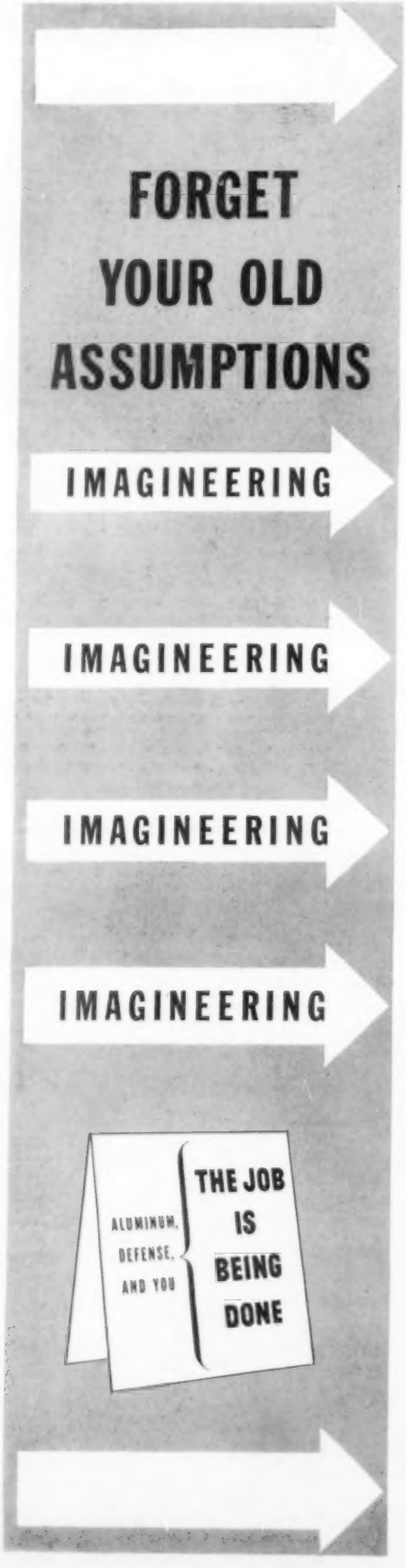
Playgrounds of the Prairies. 24 pp.
Playgrounds of Eastern Canada. 24 pp.
Canada's Mountain Playgrounds. 32 pp.

Illustrated descriptions of Canada's public parks and recreation opportunities.

Homes for the Duration

Homes to Live in.—By Elizabeth Ogg and Harold Sandbank. Public Affairs Committee, Inc., 30 Rockefeller Plaza, New York. 1942. 31 pp. 10c.

Practical suggestions for making the most of space and equipment in homes during the stringencies imposed by the war, not only for those who are settled in houses or apartments, but for those who are moving or planning to build.



IN THESE DAYS an advertisement is no place either for hosannas or sermons about production. Every man knows how well he is doing the job that is before him. Deeds, not words, are the measure.

BUT WORDS CAN BECKON beyond the realms of immediate duty.

IMAGINEERING is such a word. We coined it to make the needs of the future a reality, here and now. It is a way of describing what a man can do about the day when. . .

HOW DO YOU DO IT? You let your imagination soar and then engineer it down to earth. You think about the things you used to make, and decide that if you don't find out some way to make them immeasurably better you may never be asked by your customers to make them again.

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DID YOUR OLD PRODUCT GROW like Topsy? More than one designer is Imagineering with this point of view: My product was in a groove. I couldn't get it out, because I didn't dare get too far away from last year's model. Now's my chance to start from scratch, and let tradition be hanged.

THAT IS THE KIND OF THINKING that will make jobs in the future. It is the kind we can help with: help with ideas and with know-how. Will you invite us?

Aluminum Company of America, 2172 Gulf Building, Pittsburgh, Pennsylvania.

ALCOA ALUMINUM

When you write for that catalog, kindly mention THE AMERICAN CITY.

Syracuse's City Engineer

In listing the 1941 Annual Report of the Department of Engineering of the city of Syracuse, N. Y., under the caption, "City Engineering Report," the February issue of THE AMERICAN CITY mistakenly referred to it as the "last report of the retiring City Engineer, Nelson F. Pitts." Mr. Pitts is not resigning his office, nor is this able and effective report his last one.

Other Reports Received

ALBERT LEA, MINN.—Annual Report, 1941. 31 pp., 6 in. x 3½ in.

ATHOL, MASS.—Annual Report, Water Commissioners, 1941. 18 pp.

BRAINTREE, MASS.—Annual Report, 1941.

BRANDON, VT.—Annual Report, 1941.

CAMBRIDGE, VT.—Annual Report, 1941—On to Victory Issue. 60 pp.

DARIEN, CONN.—Annual Report, 1941. 110 pp.

FREDERICKSBURG, VA.—Annual Report, 1941. 70 pp.

GREENVILLE, S. C.—Government in the County and City of Greenville. 1941. 71 pp.

HARTFORD, CONN.—Annual Report, Board of Park Commissioners and Division of Public Cemeteries, year ending March 31, 1941. 51 pp.

JOHNSON, VT.—Annual Report, Town and Town School District, 1941. 68 pp.

KANSAS CITY, MO.—Annual Report, year ending April 30, 1941. 80 pp.

LAWRENCE, KANS.—The Industrial History of a Midwestern Town. By Kenneth A. Middleton. Bureau of Business Research, The University of Kansas. 1941. 91 pp.

NORTH KINGSTOWN, R. I.—Tax Book, 1941. 97 pp.

LEXINGTON, KY.—Budget, 1942; Audit Report, 1941. 96 pp.

MANSFIELD, MASS.—Annual Report, Town Officers, 1941. 151 pp.

MIDDLEBOROUGH, MASS.—Annual Report, 1941. 106 pp.

MILTON, MASS.—Annual Report, 1941. 313 pp.

MORRISTOWN, VT.—Annual Report, Town Officers', year ending Jan. 31, 1942.— Victory Issue. 76 pp.

MORGANTOWN, W. VA.—Fourth Statement to Morgantown Citizens, 1941.

—Traffic Survey, 1941. 49 pp.

NAHANT, MASS.—Annual Report, 1941. 135 pp.

NANTUCKET, MASS.—Annual Report, 1941. 139 pp.

NEW SALEM, MASS.—Annual Reports with Valuation and Taxes, 1941. 35 pp.

NORTHUMBERLAND, N. H.—Annual Report, Municipal Officers, year ending Jan. 31, 1942. 66 pp.

PULASKI COUNTY, ARK.—Master Plan, Roads, and Highways. Pulaski County Planning Board, Little Rock, Ark. 1941. 55 pp.

ROANOKE, VA.—Annual Report, City Auditor, 1941. 63 pp.

RUTLAND, VT.—Annual Report, 1941. 105 pp.

SANDWICH, MASS.—Annual Report, Selectmen and Other Town Officers, 1941. 132 pp.

SHOREHAM, VT.—Annual Report, year ending Jan. 31, 1942. 89 pp.

SPRINGFIELD, VT.—Annual Report, 1941. 128 pp.

TEANECK, N. J.—The Proposed 1942 Budget and Township Manager's Report. 32 pp.

TORONTO, CANADA.—Annual Report, Assessment Commissioner, 1941. 40 pp.

ST. LOUIS, MO.—Annual Report, Board of Commissioners, Tower Grove Park, 1941. 11 pp.

WALPOLE, MASS.—Annual Report, 1941. 224 pp.

WATERBURY, VT.—Annual Report, year ending Jan. 31, 1942, Town of Waterbury. 68 pp.

—Annual Report, year ending Jan. 31, 1942, Village of Waterbury. 34 pp.

WEST SPRINGFIELD, MASS.—Annual Reports, Town Officers, 1941. 310 pp.

WILLIAMSTOWN, MASS.—Annual Report, 1941. 106 pp.

WILMINGTON, MASS.—Annual Report, 1941. 180 pp.

WINDSOR, VT.—Annual Report, 1941. 63 pp.

YOUNGSTOWN, OHIO.—Report of the Trustees of the Sinking Fund, 1941. 28 pp.

Published by Illinois Legislative Council: Library Service in Illinois. 43 pp., mimeo. Periodic Inspection of Motor Vehicles. 24 pp. 1942.

Published by the Office of Civilian Defense, Washington, D. C.: The Control System of the Citizens' Defense Corps. 30 pp. Suggested Regulations for Retail Stores, for Blackouts, Air Raids. 15 pp. 1942.

The Wreckord—The Travelers 1942 Book of Street and Highway Accident Data. 36 pp.

• • • —

Relations of Art Museums to City Governments

OF the art institutions in 28 cities below 600,000 in population, 12 do not receive any city contributions, being supported entirely from private funds (Cincinnati, Kansas City, Rochester, Louisville, Columbus, Portland, Toledo, Omaha, Worcester, Richmond, Youngstown, Hartford). Six institutions receive one-third or less of their support from city contributions, including several cities which receive the city support in the form of building maintenance (Minneapolis, Indianapolis, Houston, Seattle, Atlanta, Dayton). Nine institutions receive more than one-third (most of them 70 per cent or more) of their support from city contributions (Buffalo, New Orleans, Denver, Oakland, Dallas, Memphis, San Antonio, Sacramento, Davenport). The institutions in Oakland and Davenport receive all their support from the city government.

Analysis of the activities of these 28 art museums reveals that about two-thirds of them conduct several, most, or all of the following activities: public and private lectures; guided tours; adult art and art appreciation classes; children's exhibitions; children's art and art appreciation classes; cooperation with schools; concerts; industrial and commercial exhibitions; local and state artist exhibits; publication of a periodical or bulletin; newspaper articles and radio talks. Analysis of the communities in which there is a large measure of city support to the local art institute reveals special service relationships and activities established between the art institution and the public and parochial school systems. This service is carried out partly by scheduled visits of classes in certain grades to the museum where they are met by special instructors, sometimes employed through city support, and partly by the lending of teaching collections and exhibits to the school teachers.

—The foregoing facts are from the recent Survey of Art Institutes and Art Museums by the Municipal Reference Library of Milwaukee, Wisc., listed on page 111 of THE AMERICAN CITY for March, 1942.

Save LIVES with FEDERAL AIR RAID SIRENS

Tested and Proved in Europe!

Every city—every manufacturing plant should install efficient air raid warning sirens at once!

Federal Electric Company—the largest Siren manufacturer in the world is ready to help you!

Federal Air Raid Sirens have been proved under actual bombing conditions in Europe since 1938!

Write on official stationery, or wire for special air raid protection data telling how to plan, install and operate air raid warning sirens!

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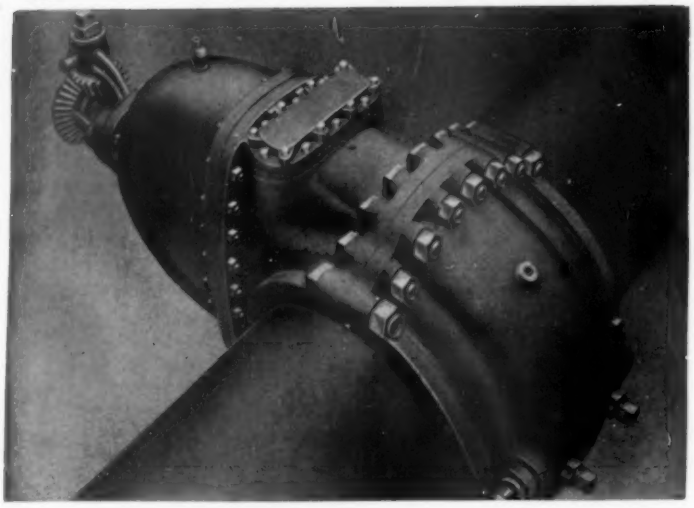

Above: A 24" valve installed horizontally under pressure.

☆ We shall gladly furnish details on the entire Smith line for your present and future needs, and, with proper W. P. B. priority ratings, will make as reasonable deliveries as possible under present conditions.

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Water SHUT-OFF
means
Industrial SHUT-DOWN

—And industrial shut-downs impede the Victory Program!

A valve-insertion job means that you do not have to shut down the service. It is economically possible, without danger, to insert new valves right into water or gas pipe lines while they are furnishing service, without in the least interfering with the supply or inconveniencing users, with a

SMITH VALVE-INSERTING MACHINE

These machines are made in five sizes, for making insertions under pressure from 4" to 30". They are simply and easily operated and do a surprisingly quick job. Write for booklet 40M.

THE A. P. SMITH MFG. CO., EAST ORANGE, N. J.

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in DEFENSE EMERGENCIES!

For wartime emergency-breaks in pipe lines, this Doublex Simplex Split Sleeve will enable you to make quick, economical, effective repairs. You should have a supply of several of each different size that you might need. Thousands in use, some for 13 years. Order now from shipping point nearest you as follows: Birmingham, Dallas, Kansas City, Los Angeles, Minneapolis, San Francisco, Pittsburgh.

AMERICAN CAST IRON PIPE CO.
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The "Quinn Standard"
FOR CONCRETE PIPE

The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 30 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms** and **Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

Quinn Heavy Duty Pipe Forms

Hand or wet process. Built to give more years of service—sizes for any diameter pipe from 12 to 84 inches—tongue and groove or bell end pipe—any length.

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For making pipe 12 to 60 inches in diameter—any length. **Write Today.** Complete information, prices and estimates sent on request.

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HOTEL PHILADELPHIAN
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39th and CHESTNUT STREETS
PHILADELPHIA, PENNA.

Our courteous and competent staff will give you the utmost in friendliness, comfort and service. Conveniently located to all stations, and only five minutes away from the heart of the business section.

600 ROOMS each with bath from $2.50 up

Lounge and Restaurants. Unrestricted Parking to 3 a.m.

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Navy "E" Goes to Mueller Brass Co. for Production Excellence

Photo by Askar-Shain Studios

Capt. Lofquist, U. S. N., presents the Navy "E" pennant and Ordnance flag to Fred L. Riggin Sr., President of the Mueller Brass Co.

IN a significant ceremony coinciding with the celebration of Lincoln's birthday, the United States Navy awarded the Mueller Brass Co., Port Huron, Mich., the coveted "E" pennant. This symbol of excellence is reserved for naval units and industrial concerns establishing outstanding records in the line of duty. This firm, now engaged heavily in the manufacture of munitions, is one of a small number of industrial firms to win this award.

Capt. E. A. Lofquist, chief of staff and aide to Rear Admiral John Downes, commander of the Ninth Naval District, presented the pennant to Fred L. Riggin, Sr., president of the firm. Lieut. Comm. Robert Velz, of the naval inspection office, presented Navy "E" buttons to Mueller employees. They were accepted by Edward H. Krenke, oldest plant employee in point of service.

"Here at Mueller Brass," said Capt. Lofquist in his speech of presentation, "you have taken the first step on this journey toward liberation and peace. The successful completion of that journey will make many demands on you. That is why I urge you here today that this is a beginning—not an end."

In accepting the award, Mr. Riggin stated, "The award of the pennant is a source of real inspiration to our whole organization. Therefore we workers at the Mueller Brass sincerely thank the officers of the Navy and of the Ordnance for this award. We propose to lay aside for the duration any and all questions whatsoever that do not pertain directly to licking the Japs and the Germans, we propose to do first things first and let nothing sway us from the path that means production and greater production, sacrifice and more sacrifice, and we will strive solely and with one accord to meet whatever obligation may be imposed upon us."

Keep Chemical Cylinders in Circulation

Unless chlorine and ammonia cylinders are kept in constant circulation, many users of these two vital chemicals may have difficulty in obtaining adequate supplies, according to R. J. Quinn of the Mathieson Alkali Works, Inc., producers of these two chemicals.

In spite of having to make heavier shipments than ever before, producers can get no new cylinders, so that the existing supply must serve all users, Mr. Quinn explains. However, if cylinders are kept circulating, it is probable that the demands of all essential industries can be met.

When cylinders are idle, it is usually due to carelessness and can be easily corrected if those in charge realize the need for prompt action, Mr. Quinn points out. All those having reserve stocks of either ammonia or chlorine should do everything within their power to get the cylinders back into service as quickly as possible.

Government Approves 21 New DPW Projects

Presidential approval of 21 Defense Public Works projects for community facilities made necessary by the war effort was announced recently by Assistant Federal Works Administrator Baird Snyder, III, acting for Administrator Philip B. Fleming. The total estimated cost of these projects is $2,023,204.

Projects include 14 hospital and health improvements, 3 water works improvements, 2 sewerage improvements, a recreational center, and also one educational development. The projects are scattered throughout 15 states.

New Soil-Cement Equipment

The spectacular growth in recent years of the low-cost road, particularly of the soil-cement type, has necessitated developments in tools and equipment to handle this type of work satisfactorily. Allis-Chalmers Mfg. Co., Milwaukee, Wis., has recently developed a complete line of such tools, tested in various types of soils, and has issued a comprehensive 28-page catalog descriptive of them.

Printed in two colors, the catalog, "Allis-Chalmers Equipment for Soil Stabilization" is designed to assist both the experienced and the inexperienced operator in this type of construction.

E. W. Fishwick, Vice-Pres. Worthington Corp., Dies

Edward T. Fishwick, vice-president and director of the Worthington Pump and Machinery Corp., died on March 15 at his home in Glen Ridge, N. J.

Mr. Fishwick had been with the Worthington organization for 49 years having started with the corporation at its Cincinnati works. Mr. Fishwick was senior vice-president of the corporation. He also was president and director of the Worthington-Gamon Meter Co. of Newark, N. J., a director of the Glen Ridge Trust Co., and a director of the New Jersey State Chamber of Commerce.

This man's army moves on wheels!

With millions of men on the move, the maintenance of America's streets and highways becomes more important than ever before.

Barber Asphalt Corporation, as sole importer and distributor of the famous Trinidad Native Lake Asphalt, is doing everything possible to supply this superb "weather-toughened" paving material.

Unfortunately, circumstances beyond our control make it impossible for us to bring into this country all of the Trinidad that's needed. But to the Army, to the Navy and to our regular customers, we pledge every effort to do our part and help "keep 'em rolling."

BARBER ASPHALT CORPORATION
BARBER NEW JERSEY

Cast Iron Pipe

PLAIN CAST OR SPUN CENTRIFUGAL

Cast Iron Pipe and Special Castings, Bell and Spigot, Flange, Flexible Joint, Culvert, Milled and Plain End Tubes, Cylinders, Flanged and Bell and Spigot Fittings, High Pressure Fire Service Pipe, Warren Short Body Specials, Threaded End Pipe.

Size 2 to 84-inch

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

Warren Foundry & Pipe Corp.
11 Broadway, New York City

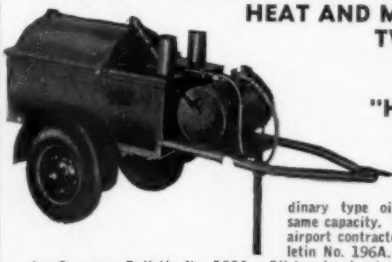
Warren Pipe Co. of Massachusetts
75 Federal Street, Boston, Mass.

Like putting 5 more men on the job

ONE man with Dolge Weed-Killer can do the work of six with hoes or other obsolete methods, clearing your drives, walks, parking lots of ugly vegetation. Write to The C. B. Dolge Company, Westport, Conn.

DOLGE WEED-KILLER

SAVE 50% ON FUEL—SPEED UP WAR WORK
HEAT AND MELT ASPHALT TWICE AS FAST
WITH THE
AEROIL "HEET-MASTER" KETTLE



The "HEET-MASTER" will produce as much "hot stuff" as two ordinary type oil-burning kettles of the same capacity. Used by leading road and airport contractors. Send for FREE Bulletin No. 196A. For Cut-Back and Emulsion Sprayers, Bulletin No. 190A. Oil-burning Lead and Pipe Compound Melting Furnaces, Bulletin No. 176A. Portable Oil Burner & Torch Outfits, Bulletin 174A. Asphalt Paving Tools & Accessories. Bulletin 312A. Asphalt Paving Tool Heaters and Asphalt Pavement Heaters, Leaflet 171RT.

Aeroil Burner Co., Inc., West New York, N. J.
CHICAGO SAN FRANCISCO DALLAS

A positive-acting sewage and sludge sampler that may be used without disturbing the liquid or contaminating the sample

Sewage Sludge Sampler Developed by P. F. T.

A convenient device, known as the P. F. T. sewage and sludge sampler for sampling still or flowing liquids without disturbing the liquid bodies or contaminating the samples, has been introduced by the Pacific Flush-Tank Co., 4241 Ravenswood Ave., Chicago, manufacturers of sewage-treatment equipment exclusively.

The unit consists essentially of a metal cylinder with an inflatable rubber valve at each end supported at the axis of the cylinder. On the one side of the unit is a sample withdrawal cock and a vent cock.

The valves at both ends, which inflate in unison, are closed, after which the unit is lowered by means of a chain to the desired depth in the medium to be sampled. The liquid is allowed to flow through the cylinder for a few moments when the valves are again inflated, closing both ends of the unit. A hand pump, supplied, with the unit, is used, and air passes to the balloon valves through a rubber hose. After the valves are inflated, the sampler is lifted to the surface and taken to a laboratory or elsewhere for removal of the sample through the draw-off cock.

Construction is simple and rugged. All parts are accesssible for cleaning or replacement. A new bulletin, No. 133, giving complete details, will be sent on request to the Pacific Flush-Tank Co.

Mathieson Builds New Magnesium Plant

In accordance with a contract which has been signed by the Defense Plants Corporation and the Mathieson Alkali Works, Inc., work on a new plant for the production of metallic magnesium and chlorine will be begun immediately, according to an announcement made by E. M. Allen, President of the Mathieson Organization.

The plant will cost approximately $22,500,000 and will be owned by the Defense Plants Corporation. It will be operated by Mathieson and produce about 36,000,000 pounds of magnesium a year.

The process to be used here differs from other processes for making magnesium electrolytically in that it does not consume chlorine but produces it in such concentration that it can be collected and liquefied. The products of the process are metallic magnesium and chlorine, both essential war materials.

S. J. Saks Is New Head of Morris Machine Works

Stuart J. Saks has recently been named president of the Morris Machine Works, Baldwinsville, N. Y., manufacturers of centrifugal pumps, hydraulic dredges, and steam engines. The announcement was made by the directors of the firm.

Mr. Saks is a graduate of Syracuse University. Following an extensive sales and management experience, he became associated with the company two and one-half years ago as assistant to the president.

New Bulletin Available on Chemical Dry Feeders

A well-illustrated 4-page bulletin with an enclosure of a complete line-drawing of Leopold dry chemical feed machines with cast-iron supports and mixing chamber have recently been issued by F. B. Leopold Co., Inc., 422 First Avenue, Pittsburgh, Pa. This X-L dry chemical feed machine is arranged for manual adjustment and control for feeding predetermined quantities of alum, lime, soda ash, or activated carbon at a uniform rate, when once set. The machines are made in several sizes with capacities varying from ½-pound to 500 pounds, depending on the weight of the chemical. Each machine consists of a cast-iron base and housing, sheet steel hopper, motor and driving mechanism, orifice feed control mechanism, and dissolving chamber. Complete information together with a list of recent installations of various sizes of these machines may be secured direct from the manufacturer, upon request, by mentioning this item.

KEEP 'EM ROLLING

The most dangerous traffic hazard at night has always been the difficulty of seeing. This is conceded by all traffic authorities. An added hazard in these times of automobile rationing and tire shortage is the doubling and tripling of passengers carried by many automobiles, especially those of war workers.

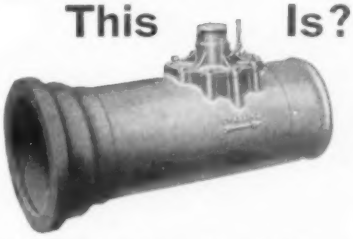
Do your part to make workers, war trucks and war transportation carriers safe at night by providing visibility with Slater lamps—simply, economically, and efficiently.

"Slater Lamps Scintillate"

SLATER

Slater Electric & Mfg. Co., Inc.
728 Atlantic Ave., Brooklyn, N. Y.

Know What This Is?



Right! It is a Sparling Meter for direct-action Totalization, ready to install in a 6-inch bell and spigot line—list price, $250.

Consistent accuracy, durability, and low head-pressure loss are important reasons for choosing a Sparling. Indicating and Recording equipment is optional.

Sparling Meters are made for all main-lines from two-inch up—Flanged, Bell and Spigot, Threaded or Welded.

New 1942 Bulletin No. 308 will be sent upon request.

SPARLING

Box 3277, Terminal Annex ..... LOS ANGELES
3104 S. Michigan Ave. ..... CHICAGO
622 Broadway ..... CINCINNATI
101 Park Ave. ..... NEW YORK

There's EXTRA Value in a BEAN SPRAYER

EXTRA low-cost operation. EXTRA long life. EXTRA ruggedness and dependability. EXTRA efficiency and EXTRA satisfaction because it's equipped with all-enclosed BEAN 'Royal' Pump. You get EXTRA good service out of the BEAN because we build EXTRA good service into it. All sizes and all types, including truck-mount and wheel-mount.

. . . Write for Special Park Sprayer Catalog

JOHN BEAN MFG. CO.
Division of Food Machinery Corporation
5 HOSMER STREET • LANSING, MICHIGAN
105 WEST JULIAN STREET • SAN JOSE, CALIFORNIA

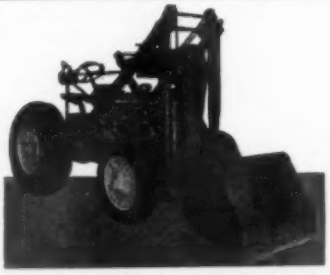
BEAN SPRAYERS ...Better ALL Ways

For Sewer and Conduit Work

—Seeger Double-Lock Couplings

Write for Data

Seeger Device Company
3529 Watson Avenue Toledo, Ohio



½ *Cu.Yd.* 8' *Lift*

FRONT END SHOVELS
for Industrial Tractor
Write for Catalog
Elkhart White Mfg. Co. Indiana

WANTED: TRAINED ADMINISTRATORS

☆ Cities all over the country are losing some of their top administrators to the federal and state governments and to defense industries. Unless there are trained replacements for these key men, city governments will be seriously crippled. If you are a department head, you owe it to your city to train an "understudy" for your job. If you are a junior administrator, now is the time to prepare for advancement.

Enroll now in one of these ten practical correspondence courses:

- Technique of Municipal Administration
- Municipal Finance Administration
- Municipal Police Administration
- Municipal Recreation Administration
- Local Welfare Administration
- Municipal Personnel Administration
- Municipal Public Works Administration
- Municipal Fire Administration
- Local Planning Administration
- American City and Its Government

☆ Special texts have been prepared for administrators on the job. Lesson papers are reviewed by leading authorities in each field. The $35 fee for each course covers the text, individualized lesson instruction, and a certificate upon satisfactory completion of the work. The text alone sells for $7.50 a copy—$65 for a complete set. For use in group training projects, in lots of five or more, the price is $6 a copy.

There are now more than 700 public officials enrolled in these courses in nearly 300 cities in 42 states.

WRITE FOR A SPECIAL CIRCULAR TODAY

INSTITUTE FOR TRAINING IN MUNICIPAL ADMINISTRATION
1315 EAST 60TH STREET CHICAGO

Building road surface at the rate of one mile per hour

Speeding Construction on Airport and Road Work

Developments in the construction of bituminous mat bases and surfaces for both roads and airport runways have evolved a new high-speed rolling machine. This machine, produced by the Universal Crusher Co., Cedar Rapids, Iowa, called "The Spreaderoller," segregates the chips, carefully spreads them in three layers with the largest first, then the medium, and finally the fines at the top. It then rolls them in a single operation at speeds up to one mile per hour.

The resulting surface is tightly interlocked, water-repellant, and anti-skid. The segregation and application results in a surface that is actually superior to roadways built by standard methods. The savings in time, also, become appreciable.

The equipment is now finding use on the construction of many airports both in the United States and Canada.

Steel Pipe for Utilities Conserves Metal

In the construction of new pipe lines for water and gas that are necessary for war production, and also in the maintenance and replacement of existing lines essential for the health and welfare of civilians, the use of protected steel pipe is finding a place. This pipe, with metal content much lower than the standard galvanized pipe, and protected to do the work of copper pipe, points to the way for supplying these utilities with a minimum use of metal.

According to figures quoted by Hill, Hubbell and Co., Cleveland, Ohio, savings in metal content alone will approach as high as 50 per cent.

Caterpillar Tractor Forms Military Engine Company

A newly incorporated company, the Caterpillar Military Engine Co., has been formed as a subsidiary of the Caterpillar Tractor Co. to cooperate with the War Department in work involving a huge armament construction contract recently awarded.

This contract which the new division will be involved in has been under negotiation for several weeks in the War Department. Of the many million-dollar total, a large fraction will be expended for the purchase of land, construction of buildings, procurement of plant equipment and for the training of key people for the operation. The remaining amount is for the initial production schedules of military equipment, to the manufacture of which the plant will be devoted.

Caterpillar Military Engine Co., whose corporate offices are at East Peoria, Ill., is headed by B. C. Heacock, president, and T. R. Farley, vice-president.

Valuable Homesites Rise from City Dump

From a New Jersey slough to a level city lot is the story of a municipal service being written by Thomas Viola and Sons, Inc., general contractors of Nutley, N. J., and their fleet of Baker Bulldozers. The transition, however, is not rapid for there is an intermediate stage in which the swampland is filled as a city garbage dump.

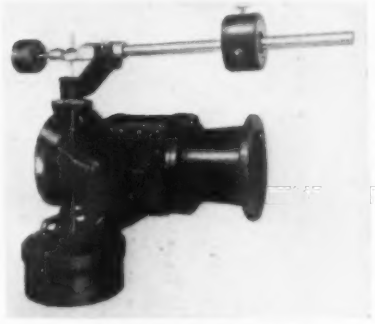
Dumps at Garfield, N. J., to take care of the refuse from several surrounding towns, were started in 1930. The Bulldozers that are used in this work are used every day under all sorts of weather conditions. They will deposit and spread an average of 1,200 cubic yards of garbage per day. The garbage fills average 20 feet in depth and are allowed to settle for years before building of houses begins. Then a special foundation or sub-foundation is required. About three feet of dressing is placed on the reclaimed land, a depth adequate for all planting purposes. In this enterprising fashion, a necessary municipal service is combined with the provision of homesites in a congested manufacturing district.

Making a valuable residence district by garbage landfill methods

BUILDERS
WATER AND SEWAGE PLANT
Instruments

Type E Direct-Acting Controllers

Features include: precise control; compact, yet flexible design; powerful "floating piston" actuation with unique rubber piston seal; low loss of head; elbow outlet or straight through design; single blade vane-type valve; generous use of corrosion-resisting materials; and the use of the basic Venturi Tube.



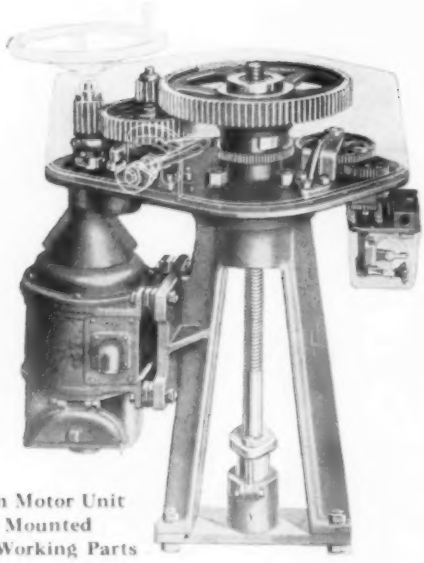
Write for Bulletin 321

BUILDERS-PROVIDENCE, INC.
Division of Builders Iron Foundry
9 Codding Street Providence, R. I.

PITTSBURGH•DES MOINES
Elevated
STEEL TANKS
From the first P-DM Elevated Steel Tank (built over 40 years ago and serving well today), to the advanced structures of the present, runs a continuity of *experience* gained in the municipal field which is always at your service. Let a P-DM Engineer consult with you—without obligation.

PITTSBURGH · DES MOINES STEEL COMPANY
Pittsburgh, Pa. . . 3412 Neville Island
Des Moines, Ia. . . . 913 Tuttle Street

VALVES BE SEATED!



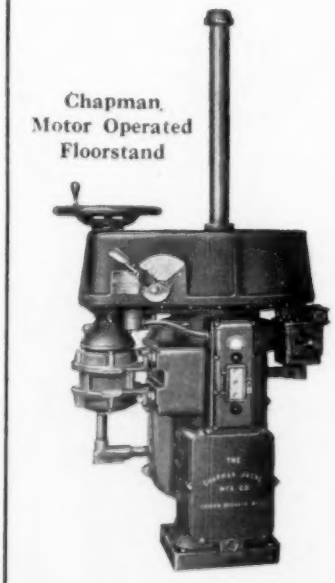
Chapman Motor Unit
Yoke Mounted
Showing Working Parts

and do it the positive "jam-less" way with

Chapman Motor Units

The use of Chapman Motor Units in waterworks and filtration is widespread and increasing. There must be and *are* good reasons. These units have many unique features which insure positive, dependable control. They are available in various mountings, including floorstands, each a complete, factory-wired unit with push button control and manual control instantly available. One *outstanding* feature is the micrometer-adjusted Chapman Limit Switch, which controls seating to any pre-determined tightness and eliminates "jamming". This and many other notable features make the Chapman Motor Unit outstanding for all types of motorized valve control.

Write for Bulletin describing the Chapman Motor Unit



Chapman
Motor Operated
Floorstand

THE CHAPMAN VALVE

Manufacturing Company

INDIAN ORCHARD, MASS.

New DeLuxe Chemical feeder

Small Chemical Feeders Have New Improvements

Interesting recent refinements in the small chemical feeder for water treating purposes make this type of equipment worthy of attention. Among these is the De Luxe Chem-O-Feeder and the Du-Self Chlor-O-Feeder manufactured by Proportioneers, Inc., 9 Codding St., Providence, R. I.

The De-Luxe Chem-O-Feeder has a newly designed stroking mechanism assuring continuous injection of chemical. It also is oil sealed by the top cover rather than by the customary side plate, thereby avoiding loss of oil during inspection. Dosages may be adjusted while the feeder is in operation. The feed rate is clearly shown on an indicating dial on top of the unit.

The Du-Self Chlor-O-Feeder is a small self-contained unit designed for the smallest user. It is strictly limited to flows under 25 gpm and pressures under 75 pounds. It can easily be installed by relatively unskilled help.

Complete Water Plant with One Control

A complete pumping filtration and sterilization plant for water supply, mounted on one chassis, under one housing, and with only one control, is being manufactured by the Technicraft Engineering Co., Division of Lane-Wells Co., 5610 South Soto St., Los Angeles, Calif. This Ster-Ozone unit under test has supplied water at capacities from a mere trickle up to the full rated capacity of the equipment without supervision aside from the monthly lubrication. The sterilizing agent used, ozone gas, is generated within the unit itself from filtered and dried air.

Primary power is supplied from an automatic gasoline-engine driven 10 kva, 220-volt, 3-phase power plant. The unit is self-starting and self-regulating and is protected against overload. Power for driving all of the mechanism is derived from a 5-hp, 220-volt, 3-phase ball-bearing double-shaft electric motor. Direct-mounted on one shaft is the all-bronze treated water-supply pump. Coupling-connected to the other motor shaft is the raw water supply pump. Also driven from the motor shaft through V-belt drives are the compressor, cooling water circulating pump, and the evaporative cooler.

Compressed air is forced into the ozonizer by a single-stage 2-cylinder compressor, V-belt driven from the motor shaft. The air is filtered, cooled and dehydrated before reaching the ozonizer cooling and expansion cycles. The air enters the ozonizer at approximately 50 pounds pressure and 75 degrees F.

Ozone is generated by a silent blue electric discharge between aluminum plates maintained at 15,000 volts. The ozonizer is operated at an air pressure of from three to six pounds, and the air leaving the ozonizer has an ozone content of 0.5 to 1.0 per cent by weight.

Ozonized air is injected directly into the specially designed absorber, through which it flows counter-current to the water in four separate stages. The absorption is effected in a domed rectangular metal tank, containing approximately 150 gallons of water undergoing treatment.

Raw water for treatment is pumped from the source by a ball-bearing, 8-inch coupling - connected cast - iron pump through one of two filter cylinders and into the absorber. From the absorber the bacterially pure treated water enters the all-bronze supply pump and is delivered directly to service at a 50-foot head. This unit comes in stationary sizes for installation in buildings and also in sizes available for mounting on a 5-ton truck which will transport it to almost any water source from which it can provide a clear, odorless, tasteless water. Full information will be found in the literature of the manufacturer which will be supplied free on request to those mentioning this descriptive text.

Tatlock Given Leave for Army Cantonment Work

M. W. Tatlock, superintendent of the Dayton sewage-treatment plant, has been given leave of absence by that city for at least six months to enable him to assist in the construction of a new $40,000,000 army cantonment. According to City Manager Fred Eichelberber, the army was insistent upon using Tatlock until the cantonment is constructed.

Mr. Tatlock will supervise a staff of 600 engineers and inspectors. He will be directly employed by the Charles H. Hurd Co., consulting engineers and architects, who have the engineering contract. Mr. Tatlock was employed by that company prior to 1928 before he became superintendent of the Dayton sewage-treatment plant.

CARSON CLAMPS
And Mechanical Joints
STOP LEAKS

Glands and bolts made of corrosion-resistant charcoal (pearlitic) cast iron—last as long as cast iron pipe. Bell clamps and mechanical-joint. Glands accommodate variations in pipe dimensions, insure uniform compression of rubber gasket.

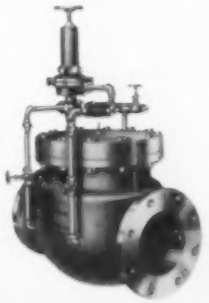
WRITE FOR ILLUSTRATED LITERATURE

Carson-Cadillac Co.
1221 Pinson St. Birmingham, Ala.

Water Pressure Relief Valve

On excess pressure, due to line surges or excess pumping head, this valve automatically opens to dissipate necessary water volume to maintain desired line pressure. The valve is arranged either with atmospheric pilot valve exhaust or self-contained, according to service conditions and requirements.

Valves may be arranged to open at abnormal pressures and held open under subnormal pressures until the surge subsides, and then close when normal conditions prevail.



Sizes: 3" to 36"

Angle and Globe Patterns

Write for Specifications.

GOLDEN-ANDERSON VALVE SPECIALTY CO.
Fulton Building Pittsburgh, Pa.

INDUSTRY ANSWERS THE CALL!

A WAR MESSAGE
to
ALL EMPLOYERS
★ From the United States Treasury Department ★
A PAY-ROLL SAVINGS PLAN
WHAT THE PAY-ROLL SAVINGS PLAN DOES
U. S. Defense BONDS ★ STAMPS
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32,145 Firms With Over 17,700,000 Employees Have Installed the . . .

PAY-ROLL SAVINGS PLAN

Have YOU Started the Pay-Roll Savings Plan in YOUR Company?

Like a strong, healthy wind, the Pay-Roll Savings Plan is sweeping America! Already more than 32,000 firms, large and small, have adopted the Plan, with a total of over seventeen million employees—and the number is swelling hourly.

***But time is short!*. .More and more billions are needed, and needed fast, to help buy the guns, tanks, planes, and ships America's fighting forces *must* have. The best and quickest way to raise this money is by giving *every* American wage earner a chance to participate in the regular, systematic purchase of Defense Bonds. The Plan provides the one perfect means of sluicing a part of ALL America's income into the Defense Bond channel regularly every pay-day in an ever-rising flood.**

Do *your* part by installing the Pay-Roll Savings Plan *now*. For truly, in this war, this *people's* war, VICTORY BEGINS AT THE PAY WINDOW.

Plan Easy to Install

Like all efficient systems, the Pay-Roll Savings Plan is amazingly easy to install, whether your employees number three or ten thousand.

For full facts and samples of free literature, send the coupon below—today! Or write, Treasury Department, Section C, 709 Twelfth Street NW., Washington, D. C.

MAIL THIS COUPON NOW

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Washington, D. C.

We want to do our part. Please rush full information regarding the Pay-Roll Savings Plan.

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MAKE EVERY PAY-DAY . . . BOND DAY!

U. S. Defense BONDS ★ STAMPS

This space is a contribution to NATIONAL DEFENSE by THE AMERICAN CITY

Small centrifugal pump has many uses

New Light-Weight Pump Finds Many Uses

A rugged little centrifugal pump weighing only 57 pounds is finding increasing use for municipal purposes. This pump, manufactured by the Chain Belt Co., Milwaukee, Wisc., contains all the engineering features of the standard line of Rex centrifugal pumps. It has a large semi-steel recirculating water chamber and is powered with a single cylinder, air-cooled engine of one horsepower.

The overall dimension of 15¼ x 11½ x 16 inches combined with a weight of only 57 pounds makes it possible to pick up this pump with suction and discharge hose still attached and carry it from job to job in the trunk compartment of an automobile.

Boiler Feed Water Deaerated by Atomization

In meeting the problem of deaerating feed-water which is turbid, contains carbonate hardness, or is low in pH value, the Cochrane Corp., 17th and Allegheny Ave., Philadelphia, Pa., has developed a deaerator that removes traces of oxygen by atomizing the water with a steam jet. This equipment, the manufacturers state, should supplement the tray-type deaerator in these particular instances. Tray-type deaerators, it is pointed out, are subject to high maintenance because of rusting and deterioration.

The condition of the water that this type of equipment will handle, and the results that have been obtained, are illustrated in Cochrane Publication 2965, "Deaeration by Atomization."

New Pittsburgh-National Water Meter Prover

To meet the need for accurately testing water meters volumetrically, the National Meter Division, Pittsburgh Equitable Meter Co., Pittsburgh, Pa., has developed a new and improved meter prover.

Designed to handle water meters up to and including the two-inch size, this prover consists primarily of a cylindrical tank to which is attached a welded steel box holding the connections and a new type of rate of flow indicating device. The tank contains a division plate which separates it into two compartments, one holding 100 gallons, and the other 10 gallons. Scales on the tank are adjustable for calibration and marked to read in percentages of error at various convenient places from 100- to 5-gallon increments. Readings also are recorded in cubic foot points.

Between the outlet pipe and the outlet of the meter are two rate of flow indicators, one reading 1/20 gpm to 15 gpm, and the other reading up to 150 gpm. This prover, the manufacturer states, will accommodate two ⅝-inch and two ¾-inch meters at one time and take single meters up to a length of 25 inches.

H. M. Lewis Opens Office for Planning and Zoning

A consultation service specializing in city and regional planning and zoning, with reports on related problems, is now being offered by Harold M. Lewis, formerly of the Regional Plan Association, New York City.

Mr. Lewis has had twenty years of experience in charge of the Committee on a Regional Plan of New York and Its Environs and its successor, the Regional Plan Association, combined with consulting services to municipal, state, and federal agencies. He is the author of various articles and reports on the technical aspects of various phases of planning.

Electronic Air Raid Siren Announced by Audiograph

A new electronic type air raid siren, designed to give increased volume for alarms as well as a simple method of crowd control, is announced by Audiograph Division of John Mack Industries, 1313 West Randoph St., Chicago. Called the "Electro-Siren," this unit makes use of a vacuum-tube tone generator which the manufacturer states can either duplicate the rising and falling tone of a mechanical siren, or can be set at any pitch for best audibility over traffic or manufacturing noises.

A feature of this new unit is an arrangement that permits the use of a microphone over the same system. This, the manufacturer points out, is important in avoiding confusion and panic in crowded places.

The Audiograph "Electro-Siren" normally operates from any 110-volt source, but in case of current failure can be instantly switched to six-volt storage battery operation.

Electronic Air Raid Siren

A DE LAVAL PUMP
to fit your job

INFINITE combinations of capacities, heads and speeds require careful design of each centrifugal pump to insure best efficiency and desired operating characteristics.

● State your pumping requirements in detail so that the engineers of our Centrifugal Pump Department may give you all the benefit of their extensive experience. Ask for Leaflet P-3220.

DE LAVAL
STEAM TURBINE CO.
TRENTON, N. J.

FORD RESETTERS

The simple and easy way to correct the position of water meters set too low.

These fittings connect between old meter couplings. The meter is then reset between the copper tubes of the RESETTER. RESETTERS are made in several heights, sizes and types. Ask for our catalog and a free sample.

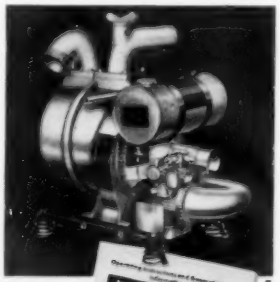
FORD METER BOX CO.
WABASH, IND.

This is the season for water and mud and for

Homelite Portable Pumps

Save Man Power and Man Hours

Don't let spring thaws hold up your work. Put Homelite Portable Pumps on your jobs. These 15,000 gallon per hour pumps dewater ditches and manholes in practically no time —and being self-priming they sop up seepage automatically. They eliminate delays — make it possible for men to start working quicker. And being easily moved around by one man and self-operated by built-in gasoline engines, these 91 pound units do not tie-up scarce labor on pumping. They let your men free for more important work.



Keep 'Em Pumping Longer

It's easy to keep Homelite Portable Pumps in top condition. Simply—

- 1. Make sure suction hose is tight and not leaking.
- 2. Always use a strainer on suction hose.
- 3. Always mix ¾ pint of No. 40 oil with each gallon of gasoline used.
- 4. Keep breaker points set at .020 in.
  Send for helpful service manual.

Homelite Corporation

204 RIVERDALE AVE., PORT CHESTER, N. Y.

Bulletin on Calcium Chloride Analyzes Use in Concrete

In an effort to analyze and assemble data regarding the use of calcium chloride as an admixture in concrete work, the Calcium Chloride Association, 4145 Penobscot Bldg., Detroit, Mich., has prepared a new 64-page bulletin entitled "The Use of Calcium Chloride in Concreting."

The association has based the information on more than 25 years of experience in using this chemical, quoting from authoritative sources such as the National Bureau of Standards, the Highway Research Board, the American Society of Testing Materials, as well as various technical magazines. The bulletin discusses the general use of calcium chloride as an admixture, practical examples of its use, and contains technical abstracts as well as recommended specifications.

This bulletin, identified as No. 28, may be obtained free, according to the Calcium Chloride Assn., by writing to the address mentioned above.

Bill Slee Returns from Abroad

William C. (Bill) Slee, known for many years in the road building industry, has returned from a year's work abroad with the Pan American Airways Airport Development. He is now located in Washington as special representative for Robinson Clay Products Company of Akron, Ohio.

Bill, for many years was Assistant Engineer Director of the American Road Builders Assn., and organized and built the Airport Division of the Assn.

Hays Co. Names Johnson for Production Work

Arthur E. Johnson, for several years sales representative for the Hays Manufacturing Co., Erie, Pa., has been transferred to the production department which is located in Erie, Pa. Mr. Johnson formerly covered the territory of northern New York and New England. This field will now be handled by G. S. Wyman from the New York City office and Richard Juline from Erie.

Nussbaumer Director of Buffalo Public Works

N. L. Nussbaumer has recently been named Director of Public Works for the City of Buffalo, N. Y. Mr. Nussbaumer formerly was associated with George L. Diehl, Consulting Engineer of Buffalo, and later began practice independently in the consulting field. He is a member of the American Society of Civil Engineers and is a past-president of the New York Sewage Works Assn.

Milwaukee Journal Photo

This powerful mobile searchlight has many uses in municipal defense

Portable Searchlight by Lister-Blackstone

Helping America turn night into day so that military and civilian requirements can be filled is one of the jobs of Lister-Blackstone, Inc., Milwaukee, Wisc. This company is now manufacturing powerful portable searchlight units in addition to its regular floodlight machines.

Like the floodlight model, the searchlight is called the "Nite-Hawk" and is a fully self-contained source of light. It has a 24-inch searchlight with a 3½ million candle power and throws an effective beam of light for one mile. Two 30,000 candle-power wide-angle floodlights are also mounted for use as auxiliary or general lighting. If desired, more powerful searchlights may be used with effective lighting ranges up to three miles.

The machine has countless uses according to the manufacturer. Its ability to throw a long concentrated beam of light makes it ideal for laying a stretch of pipe and for lighting the way for contractor's hauling units. Airports are already using it as an emergency lighting unit to bring in planes. In case of air attacks, municipalities are expected to find it useful in keeping enemy planes high enough to make their bombing inaccurate.

Mounted on a two-wheeled sprung frame and pneumatic tires, the outfit is easily towed by an auto or small truck. A third retractable wheel allows the unit to be wheeled easily into position. Power is supplied by an air-cooled 14 hp Le Roi engine.

In addition to providing light, the machine has a control panel with receptacles for operating small hand tools.

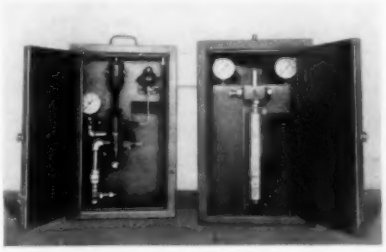
New Operation Manual for Activated Sludge

The second edition of the Operation Manual for Activated Sludge Sewage Treatment Plants, issued by the Sanitary Engineering Division of The American Well Works, Aurora, Ill., is now available to readers of THE AMERICAN CITY. The Manual discusses plant operation, starting with the screen chamber, then the grit chamber, the problems of grease flotation, the care and operation of the primary settling tank, the pumping of primary tank sludge, then the aeration tank and final settling tank.

New Portable Chlorinator for Emergency Protection

A new portable chlorinating unit designed to meet emergency calls quickly and efficiently has just been introduced by Wallace and Tiernan Co., Inc., Belleville, N. J. Indispensable for emergency protection, the new unit has continual usefulness at all times for dead-end flushing, main sterilization, and other chlorination needs away from the plant.

Wallace and Tiernan Technical Publication No. 231 gives complete information and specifications.



New portable chlorinator

Jeffrey

FOR A COMPLETE LINE OF SEWAGE AND WATER-TREATMENT EQUIPMENT . .

Bar screens (mechanically-cleaned)
Chemical feeders (electric vibrating)
Floctrols (controlled flocculation)
Grit washers
Grit collectors
Primary and secondary sludge collectors
Sludge elevators
Screenings grinders
Scum removers
(All Patented)

Jeffrey engineers have had years of experience—have made many installations—can offer technical data on both equipment and plant design. Write

The Jeffrey Mfg. Co.

970-99 NORTH FOURTH STREET
COLUMBUS, OHIO

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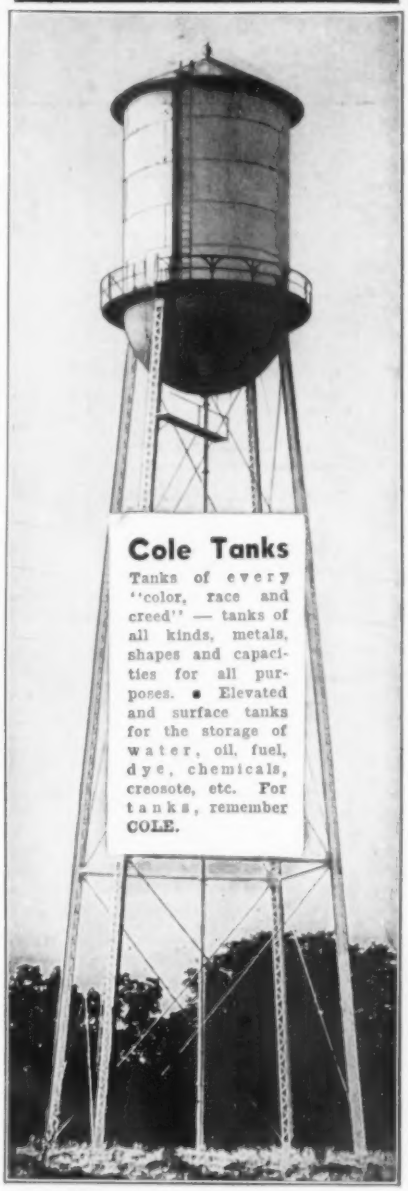

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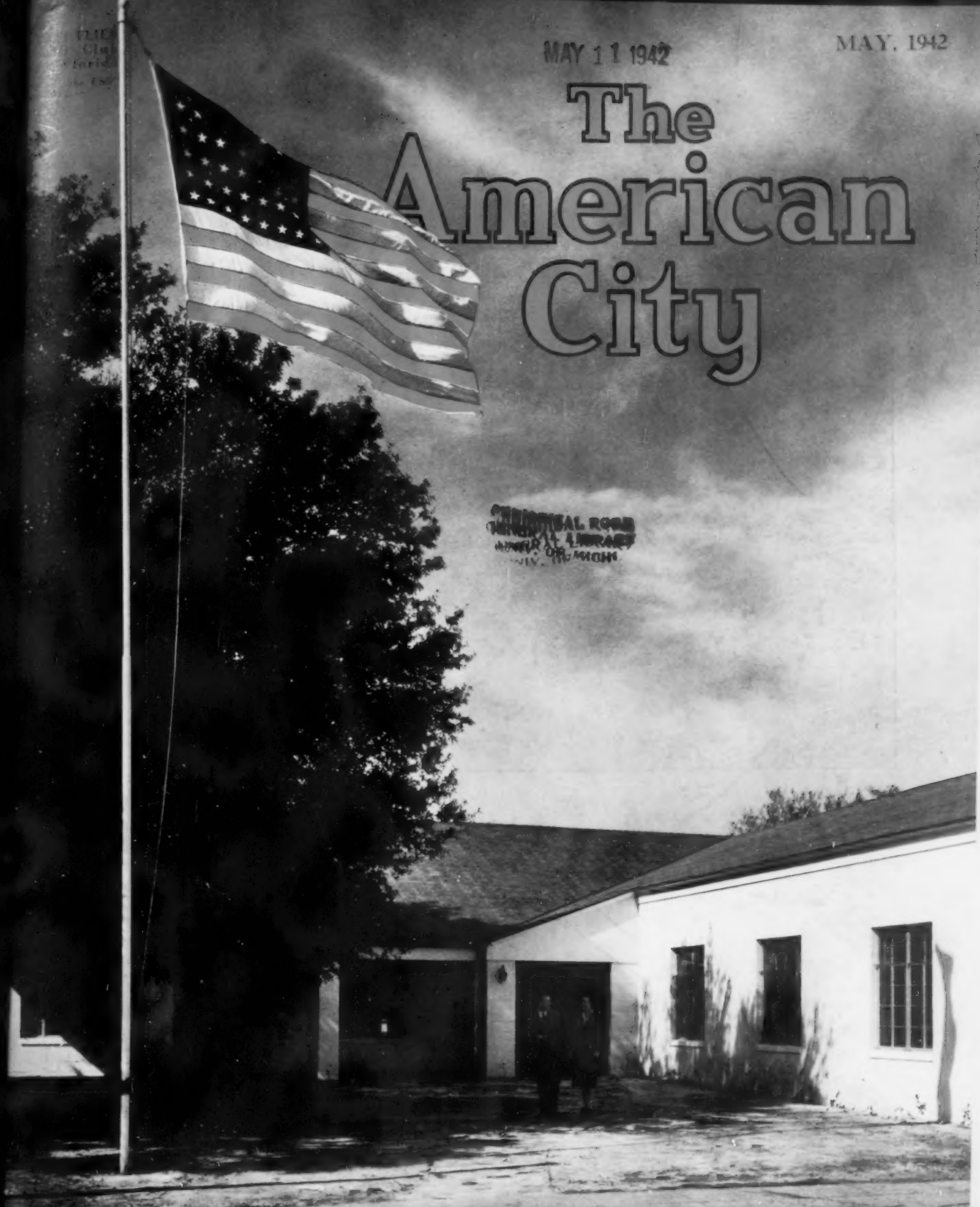

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